



SEQUENCE LISTING

<110> Reed, John C.

<120> Novel Card Proteins Involved in Cell Death Regulation

<130> P-LJ 3650

<140> 10/828,920

<141> 2004-04-20

150> 09/388,221

<151> 1999-09-01

<160> 30

<170> PatentIn Ver. 2.0

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<211> 4422

<212> DNA

<213> Homo sapiens

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Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln	
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Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp	
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aca act ctg agt gat gag atg agg cag gaa ctg agg gcc ctg gag cag	2928
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Ser			

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		260						265					270			

Asp	Phe	Asn	Gln	Lys	Phe	Thr	Gln	Leu	Leu	Leu	Leu	Gln	Arg	Pro	His	275	280	285
Pro	Arg	Ser	Gln	Asp	Pro	Leu	Val	Lys	Arg	Ser	Trp	Pro	Asp	Tyr	Val	290	295	300
Glu	Glu	Asn	Arg	Gly	His	Leu	Ile	Glu	Ile	Arg	Asp	Leu	Phe	Gly	Pro	305	310	315
Gly	Leu	Asp	Thr	Gln	Glu	Pro	Arg	Ile	Val	Ile	Leu	Gln	Gly	Ala	Ala	325	330	335
Gly	Ile	Gly	Lys	Ser	Thr	Leu	Ala	Arg	Gln	Val	Lys	Glu	Ala	Trp	Gly	340	345	350
Arg	Gly	Gln	Leu	Tyr	Gly	Asp	Arg	Phe	Gln	His	Val	Phe	Tyr	Phe	Ser	355	360	365
Cys	Arg	Glu	Leu	Ala	Gln	Ser	Lys	Val	Val	Ser	Leu	Ala	Glu	Leu	Ile	370	375	380
Gly	Lys	Asp	Gly	Thr	Ala	Thr	Pro	Ala	Pro	Ile	Arg	Gln	Ile	Leu	Ser	385	390	395
Arg	Pro	Glu	Arg	Leu	Leu	Phe	Ile	Leu	Asp	Gly	Val	Asp	Glu	Pro	Gly	405	410	415
Trp	Val	Leu	Gln	Glu	Pro	Ser	Ser	Glu	Leu	Cys	Leu	His	Trp	Ser	Gln	420	425	430
Pro	Gln	Pro	Ala	Asp	Ala	Leu	Leu	Gly	Ser	Leu	Leu	Gly	Lys	Thr	Ile	435	440	445
Leu	Pro	Glu	Ala	Ser	Phe	Leu	Ile	Thr	Ala	Arg	Thr	Thr	Ala	Leu	Gln	450	455	460
Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln	Ala	Arg	Trp	Val	Glu	Val	Leu	Gly	465	470	475
Phe	Ser	Glu	Ser	Ser	Arg	Lys	Glu	Tyr	Phe	Tyr	Arg	Tyr	Phe	Thr	Asp	485	490	495
Glu	Arg	Gln	Ala	Ile	Arg	Ala	Phe	Arg	Leu	Val	Lys	Ser	Asn	Lys	Glu	500	505	510
Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro	Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr	515	520	525
Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser	530	535	540
Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln	545	550	555
Ala	Gln	Pro	Leu	Gly	Pro	Gln	Leu	Arg	Asp	Leu	Cys	Ser	Leu	Ala	Ala	565	570	575

Glu	Gly	Ile	Trp	Gln	Lys	Lys	Thr	Leu	Phe	Ser	Pro	Asp	Asp	Leu	Arg	580	585	590
Lys	His	Gly	Leu	Asp	Gly	Ala	Ile	Ile	Ser	Thr	Phe	Leu	Lys	Met	Gly	595	600	605
Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu	610	615	620
Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu	625	630	635
Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr	645	650	655
Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg	660	665	670
Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn	675	680	685
Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val	690	695	700
Pro	Ser	Leu	Gln	Leu	Leu	Leu	Gln	Pro	His	Ser	Leu	Glu	Ser	Leu	His	705	710	715
Cys	Leu	Tyr	Glu	Thr	Arg	Asn	Lys	Thr	Phe	Leu	Thr	Gln	Val	Met	Ala	725	730	735
His	Phe	Glu	Glu	Met	Gly	Met	Cys	Val	Glu	Thr	Asp	Met	Glu	Leu	Leu	740	745	750
Val	Cys	Thr	Phe	Cys	Ile	Lys	Phe	Ser	Arg	His	Val	Lys	Lys	Leu	Gln	755	760	765
Leu	Ile	Glu	Gly	Arg	Gln	His	Arg	Ser	Thr	Trp	Ser	Pro	Thr	Met	Val	770	775	780
Val	Leu	Phe	Arg	Trp	Val	Pro	Val	Thr	Asp	Ala	Tyr	Trp	Gln	Ile	Leu	785	790	795
Phe	Ser	Val	Leu	Lys	Val	Thr	Arg	Asn	Leu	Lys	Glu	Leu	Asp	Leu	Ser	805	810	815
Gly	Asn	Ser	Leu	Ser	His	Ser	Ala	Val	Lys	Ser	Leu	Cys	Lys	Thr	Leu	820	825	830
Arg	Arg	Pro	Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	Gly	Cys	Gly	835	840	845
Leu	Thr	Ala	Glu	Asp	Cys	Lys	Asp	Leu	Ala	Phe	Gly	Leu	Arg	Ala	Asn	850	855	860
Gln	Thr	Leu	Thr	Glu	Leu	Asp	Leu	Ser	Phe	Asn	Val	Leu	Thr	Asp	Ala	865	870	875

Gly	Ala	Lys	His	Leu	Cys	Gln	Arg	Leu	Arg	Gln	Pro	Ser	Cys	Lys	Leu	885	890	895
Gln	Arg	Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln	900	905	910
Asp	Leu	Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp	915	920	925
Leu	Gln	Gln	Asn	Asn	Leu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu	930	935	940
Gly	Leu	Arg	His	Pro	Ala	Cys	Lys	Leu	Ile	Arg	Leu	Gly	Leu	Asp	Gln	945	950	955
Thr	Thr	Leu	Ser	Asp	Glu	Met	Arg	Gln	Glu	Leu	Arg	Ala	Leu	Glu	Gln	965	970	975
Glu	Lys	Pro	Gln	Leu	Leu	Ile	Phe	Ser	Arg	Arg	Lys	Pro	Ser	Val	Met	980	985	990
Thr	Pro	Thr	Glu	Gly	Leu	Asp	Thr	Gly	Glu	Met	Ser	Asn	Ser	Thr	Ser	995	1000	1005
Ser	Leu	Lys	Arg	Gln	Arg	Leu	Gly	Ser	Glu	Arg	Ala	Ala	Ser	His	Val	1010	1015	1020
Ala	Gln	Ala	Asn	Leu	Lys	Leu	Leu	Asp	Val	Ser	Lys	Ile	Phe	Pro	Ile	1025	1030	1035
Ala	Glu	Ile	Ala	Glu	Glu	Ser	Ser	Pro	Glu	Val	Val	Pro	Val	Glu	Leu	1045	1050	1055
Leu	Cys	Val	Pro	Ser	Pro	Ala	Ser	Gln	Gly	Asp	Leu	His	Thr	Lys	Pro	1060	1065	1070
Leu	Gly	Thr	Asp	Asp	Asp	Phe	Trp	Gly	Pro	Thr	Gly	Pro	Val	Ala	Thr	1075	1080	1085
Glu	Val	Val	Asp	Lys	Glu	Lys	Asn	Leu	Tyr	Arg	Val	His	Phe	Pro	Val	1090	1095	1100
Ala	Gly	Ser	Tyr	Arg	Trp	Pro	Asn	Thr	Gly	Leu	Cys	Phe	Val	Met	Arg	1105	1110	1115
Glu	Ala	Val	Thr	Val	Glu	Ile	Glu	Phe	Cys	Val	Trp	Asp	Gln	Phe	Leu	1125	1130	1135
Gly	Glu	Ile	Asn	Pro	Gln	His	Ser	Trp	Met	Val	Ala	Gly	Pro	Leu	Leu	1140	1145	1150
Asp	Ile	Lys	Ala	Glu	Pro	Gly	Ala	Val	Glu	Ala	Val	His	Leu	Pro	His	1155	1160	1165
Phe	Val	Ala	Leu	Gln	Gly	Gly	His	Val	Asp	Thr	Ser	Leu	Phe	Gln	Met	1170	1175	1180

Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala Arg Val
1185 1190 1195 1200

Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro Leu Gly
1205 1210 1215

Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro Val Thr
1220 1225 1230

Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val Thr Phe
1235 1240 1245

His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala Ile Asp
1250 1255 1260

Asp Leu Glu Met Lys Phe Gln Phe Val Arg Ile His Lys Pro Pro Pro
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Leu Thr Pro Leu Tyr Met Gly Cys Arg Tyr Thr Val Ser Gly Ser Gly
1285 1290 1295

Ser Gly Met Leu Glu Ile Leu Pro Lys Glu Leu Glu Leu Cys Tyr Arg
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Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu Phe Tyr Val Gly His Leu
1315 1320 1325

Gly Ser Gly Ile Arg Leu Gln Val Lys Asp Lys Lys Asp Glu Thr Leu
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Val Trp Glu Ala Leu Val Lys Pro Gly Asp Leu Met Pro Ala Thr Thr
1345 1350 1355 1360

Leu Ile Pro Pro Ala Arg Ile Ala Val Pro Ser Pro Leu Asp Ala Pro
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Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln Leu Ile Ala Arg
1380 1385 1390

Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His Gly Gln Val Leu
1395 1400 1405

Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg Pro Ser
1410 1415 1420

Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg Lys Cys
1425 1430 1435 1440

Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His Leu Ile
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Ser

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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg 144
His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

agt ggc atg gag gtg gcc tcg tac ctg gtg gct cag tat ggg gag cag 192
Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg 240
Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288
Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
85 90 95

ccc tac agc cca agt gaa ccc cac ctg ggg tct ccc agc caa ccc acc 336
Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
100 105 110

tcc acc gca gtg cta atg ccc tgg atc cat gaa ttg ccg gcg ggg tgc 384
Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

acc cag ggc tca gag aga agg gtt ttg aga cag ctg cct gac aca tct 432
Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

gga cgc cgc tgg aga gaa atc tct gcc tca ctc ctc tac caa gct ctt 480
Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

cca agc tcc cca gac cat gag tct cca agc cag gag tca ccc aac gcc 528
Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

ccc aca tcc aca gca gtg ctg ggg agc tgg gga tcc cca cct cag ccc 576
Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro

180	185	190	
agc cta gca ccc aga gag cag gag gct cct ggg acc caa tgg cct ctg			624
Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu			
195	200	205	
gat gaa acg tca gga att tac tac aca gaa atc aga gaa aga gag aga			672
Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg			
210	215	220	
gag aaa tca gag aaa ggc agg ccc cca tgg gca gcg gtg gta gga acg			720
Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr			
225	230	235	240
ccc cca cag gcg cac acc agc cta cag ccc cac cac cac cca tgg gag			768
Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu			
	245	250	255
cct tct gtg aga gag agc ctc tgt tcc aca tgg ccc tgg aaa aat gag			816
Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu			
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gat ttt aac caa aaa ttc aca cag ctg cta ctt cta caa aga cct cac			864
Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His			
	275	280	285
ccc aga agc caa gat ccc ctg gtc aag aga agc tgg cct gat tat gtg			912
Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val			
	290	295	300
gag gag aat cga gga cat tta att gag atc aga gac tta ttt ggc cca			960
Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro			
305	310	315	320
ggc ctg gat acc caa gaa cct cgc ata gtc ata ctg cag ggg gct gct			1008
Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala			
	325	330	335
gga att ggg aag tca aca ctg gcc agg cag gtg aag gaa gcc tgg ggg			1056
Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly			
	340	345	350
aga ggc cag ctg tat ggg gac cgc ttc cag cat gtc ttc tac ttc agc			1104
Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser			
	355	360	365
tgc aga gag ctg gcc cag tcc aag gtg gtg agt ctc gct gag ctc atc			1152
Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile			
	370	375	380
gga aaa gat ggg aca gcc act ccg gct ccc att aga cag atc ctg tct			1200
Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser			
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agg cca gag cgg ctg ctc ttc atc ctc gat ggt gta gat gag cca gga			1248
Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly			
	405	410	415

tgg gtc ttg cag gag ccg agt tct gag ctc tgt ctg cac tgg agc cag	1296
Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln	
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Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile	
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Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln	
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Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly	
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Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp	
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Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu	
500 505 510	
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Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr	
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Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser	
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Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln	
545 550 555 560	
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Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala	
565 570 575	
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Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg	
580 585 590	
aag cat ggg tta gat ggg gcc atc atc tcc acc ttc ttg aag atg ggt	1824
Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly	
595 600 605	
att ctt caa gag cac ccc atc cct ctg agc tac agc ttc att cac ctc	1872
Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu	
610 615 620	
tgt ttc caa gag ttc ttt gca gca atg tcc tat gtc ttg gag gat gag	1920
Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu	
625 630 635 640	

aag ggg aga ggt aaa cat tct aat tgc atc ata gat ttg gaa aag acg	1968
Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr	
645 650 655	
cta gaa gca tat gga ata cat ggc ctg ttt ggg gca tca acc aca cgt	2016
Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg	
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Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn	
675 680 685	
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Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val	
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Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His	
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Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala	
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His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu	
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Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln	
755 760 765	
ctg att gag ggc agg cag cac aga tca aca tgg agc ccc acc atg gta	2352
Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val	
770 775 780	
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Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu	
785 790 795 800	
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Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser	
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Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu	
820 825 830	
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Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly	
835 840 845	
ctc aca gct gag gac tgc aag gac ctt gcc ttt ggg ctg aga gcc aac	2592
Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn	
850 855 860	
cag acc ctg acc gag ctg gac ctg agc ttc aat gtg ctc acg gat gct	2640

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala	
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Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu	
885 890 895	
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Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln	
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Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu	
930 935 940	
ggg ctc agg cat cct gcc tgc aaa ctc ata cgc ctg ggg aaa cca agt	2880
Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser	
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Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser	
965 970 975	
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Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser	
980 985 990	
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His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe	
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Phe Leu Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro			
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Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala			
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Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro			
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ttg gga gtc ctc ctg aaa atg atc cat aat gcc ctg cgc ttc att ccc			3600
Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro			
	1185	1190	1195
gtc acc tct gtg gtg ttg ctt tac cac cgc gtc cat cct gag gaa gtc			3648
Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val			
	1205	1210	1215
acc ttc cac ctc tac ctg atc cca agt gac tgc tcc att cgg aag gaa			3696
Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Glu			
	1220	1225	1230
ctg gag ctc tgc tat cga agc cct gga gaa gac cag ctg ttc tcg gag			3744
Leu Glu Leu Cys Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu			
	1235	1240	1245
ttc tac gtt ggc cac ttg gga tca ggg atc agg ctg caa gtg aaa gac			3792
Phe Tyr Val Gly His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp			
	1250	1255	1260
aag aaa gat gag act ctg gtg tgg gag gcc ttg gtg aaa cca gga gat			3840
Lys Lys Asp Glu Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp			
	1265	1270	1275
ctc atg cct gca act act ctg atc cct cca gcc cgc ata gcc gta cct			3888
Leu Met Pro Ala Thr Thr Leu Ile Pro Pro Ala Arg Ile Ala Val Pro			
	1285	1290	1295
tca cct ctg gat gcc ccg cag ttg ctg cac ttt gtg gac cag tat cga			3936
Ser Pro Leu Asp Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg			
	1300	1305	1310
gag cag ctg ata gcc cga gtg aca tcg gtg gag gtt gtc ttg gac aaa			3984
Glu Gln Leu Ile Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys			
	1315	1320	1325

ctg cat gga cag gtg ctg agc cag gag cag tac gag agg gtg ctg gct 4032
 Leu His Gly Gln Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala
 1330 1335 1340

gag aac acg agg ccc agc cag atg cgg aag ctg ttc agc ttg agc cag 4080
 Glu Asn Thr Arg Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln
 1345 1350 1355 1360

tcc tgg gac cgg aag tgc aaa gat gga ctc tac caa gcc ctg aag gag 4128
 Ser Trp Asp Arg Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu
 1365 1370 1375

acc cat cct cac ctc att atg gaa ctc tgg gag aag ggc agc aaa aag 4176
 Thr His Pro His Leu Ile Met Glu Leu Trp Glu Lys Gly Ser Lys Lys
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gga ctc ctg cca ctc agc agc tga 4200
 Gly Leu Leu Pro Leu Ser Ser
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His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
 35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
 50 55 60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
 65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
 85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
 100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
 115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
 130 135 140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
 145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His
275 280 285

Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
290 295 300

Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro
305 310 315 320

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly
340 345 350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
355 360 365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile
370 375 380

Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser
385 390 395 400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
405 410 415

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
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Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln	Ala	Arg	Trp	Val	Glu	Val	Leu	Gly	465	470	475	480
Phe	Ser	Glu	Ser	Ser	Arg	Lys	Glu	Tyr	Phe	Tyr	Arg	Tyr	Phe	Thr	Asp	485	490	495	
Glu	Arg	Gln	Ala	Ile	Arg	Ala	Phe	Arg	Leu	Val	Lys	Ser	Asn	Lys	Glu	500	505	510	
Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro	Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr	515	520	525	
Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser	530	535	540	
Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln	545	550	555	560
Ala	Gln	Pro	Leu	Gly	Pro	Gln	Leu	Arg	Asp	Leu	Cys	Ser	Leu	Ala	Ala	565	570	575	
Glu	Gly	Ile	Trp	Gln	Lys	Lys	Thr	Leu	Phe	Ser	Pro	Asp	Asp	Leu	Arg	580	585	590	
Lys	His	Gly	Leu	Asp	Gly	Ala	Ile	Ile	Ser	Thr	Phe	Leu	Lys	Met	Gly	595	600	605	
Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu	610	615	620	
Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu	625	630	635	640
Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr	645	650	655	
Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg	660	665	670	
Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn	675	680	685	
Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val	690	695	700	
Pro	Ser	Leu	Gln	Leu	Leu	Leu	Gln	Pro	His	Ser	Leu	Glu	Ser	Leu	His	705	710	715	720
Cys	Leu	Tyr	Glu	Thr	Arg	Asn	Lys	Thr	Phe	Leu	Thr	Gln	Val	Met	Ala	725	730	735	
His	Phe	Glu	Glu	Met	Gly	Met	Cys	Val	Glu	Thr	Asp	Met	Glu	Leu	Leu	740	745	750	
Val	Cys	Thr	Phe	Cys	Ile	Lys	Phe	Ser	Arg	His	Val	Lys	Lys	Leu	Gln	755	760	765	

Leu	Ile	Glu	Gly	Arg	Gln	His	Arg	Ser	Thr	Trp	Ser	Pro	Thr	Met	Val	
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Val	Leu	Phe	Arg	Trp	Val	Pro	Val	Thr	Asp	Ala	Tyr	Trp	Gln	Ile	Leu	
785					790					795					800	
Phe	Ser	Val	Leu	Lys	Val	Thr	Arg	Asn	Leu	Lys	Glu	Leu	Asp	Leu	Ser	
				805					810					815		
Gly	Asn	Ser	Leu	Ser	His	Ser	Ala	Val	Lys	Ser	Leu	Cys	Lys	Thr	Leu	
			820					825					830			
Arg	Arg	Pro	Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	Gly	Cys	Gly	
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Leu	Thr	Ala	Glu	Asp	Cys	Lys	Asp	Leu	Ala	Phe	Gly	Leu	Arg	Ala	Asn	
	850					855					860					
Gln	Thr	Leu	Thr	Glu	Leu	Asp	Leu	Ser	Phe	Asn	Val	Leu	Thr	Asp	Ala	
865					870					875					880	
Gly	Ala	Lys	His	Leu	Cys	Gln	Arg	Leu	Arg	Gln	Pro	Ser	Cys	Lys	Leu	
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Gln	Arg	Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln	
			900					905					910			
Asp	Leu	Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp	
	915						920					925				
Leu	Gln	Gln	Asn	Asn	Leu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu	
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Gly	Leu	Arg	His	Pro	Ala	Cys	Lys	Leu	Ile	Arg	Leu	Gly	Lys	Pro	Ser	
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Val	Met	Thr	Pro	Thr	Glu	Gly	Leu	Asp	Thr	Gly	Glu	Met	Ser	Asn	Ser	
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Thr	Ser	Ser	Leu	Lys	Arg	Gln	Arg	Leu	Gly	Ser	Glu	Arg	Ala	Ala	Ser	
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His	Val	Ala	Gln	Ala	Asn	Leu	Lys	Leu	Leu	Asp	Val	Ser	Lys	Ile	Phe	
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Glu	Leu	Leu	Cys	Val	Pro	Ser	Pro	Ala	Ser	Gln	Gly	Asp	Leu	His	Thr	
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Lys	Pro	Leu	Gly	Thr	Asp	Asp	Asp	Phe	Trp	Gly	Pro	Thr	Gly	Pro	Val	
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Ala	Thr	Glu	Val	Val	Asp	Lys	Glu	Lys	Asn	Leu	Tyr	Arg	Val	His	Phe	
		1060					1065					1070				

Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val
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Met Arg Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln
1090 1095 1100

Phe Leu Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro
1105 1110 1115 1120

Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu
1125 1130 1135

Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe
1140 1145 1150

Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala
1155 1160 1165

Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro
1170 1175 1180

Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro
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Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val
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Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Glu
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Leu Glu Leu Cys Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu
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Phe Tyr Val Gly His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp
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Lys Lys Asp Glu Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp
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Leu Met Pro Ala Thr Thr Leu Ile Pro Pro Ala Arg Ile Ala Val Pro
1285 1290 1295

Ser Pro Leu Asp Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg
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Glu Gln Leu Ile Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys
1315 1320 1325

Leu His Gly Gln Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala
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Glu Asn Thr Arg Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln
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Ser Trp Asp Arg Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu
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Gly Leu Leu Pro Leu Ser Ser
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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg 144
His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

agt ggc atg gag gtg gcc tcg tac ctg gtg gct cag tat ggg gag cag 192
Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg 240
Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288
Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
85 90 95

ccc tac agc cca agt gaa ccc cac ctg ggg tct ccc agc caa ccc acc 336
Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
100 105 110

tcc acc gca gtg cta atg ccc tgg atc cat gaa ttg ccg gcg ggg tgc 384
Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

acc cag ggc tca gag aga agg gtt ttg aga cag ctg cct gac aca tct 432
Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

gga cgc cgc tgg aga gaa atc tct gcc tca ctc ctc tac caa gct ctt 480
Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

cca agc tcc cca gac cat gag tct cca agc cag gag tca ccc aac gcc	528
Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala	
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Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro	
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Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu	
195 200 205	
gat gaa acg tca gga att tac tac aca gaa atc aga gaa aga gag aga	672
Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg	
210 215 220	
gag aaa tca gag aaa ggc agg ccc cca tgg gca gcg gtg gta gga acg	720
Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr	
225 230 235 240	
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Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu	
245 250 255	
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Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu	
260 265 270	
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Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His	
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Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val	
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305 310 315 320	
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Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala	
325 330 335	
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340 345 350	
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Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser	
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Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile	
370 375 380	

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Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser	
385 390 395 400	
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Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly	
405 410 415	
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Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln	
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cca cag ccg gcg gat gca ctg ctg ggc agt ttg ctg ggg aaa act ata	1344
Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile	
435 440 445	
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Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln	
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Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly	
465 470 475 480	
ttc tct gag tcc agc agg aag gaa tat ttc tac aga tat ttc aca gat	1488
Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp	
485 490 495	
gaa agg caa gca att aga gcc ttt agg ttg gtc aaa tca aac aaa gag	1536
Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu	
500 505 510	
ctc tgg gcc ctg tgt ctt gtg ccc tgg gtg tcc tgg ctg gcc tgc act	1584
Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr	
515 520 525	
tgc ctg atg cag cag atg aag cgg aag gaa aaa ctc aca ctg act tcc	1632
Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser	
530 535 540	
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Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln	
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Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala	
565 570 575	
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Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg	
580 585 590	
aag cat ggg tta gat ggg gcc atc atc tcc acc ttc ttg aag atg ggt	1824
Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly	
595 600 605	
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Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu		
610						615					620						
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Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu		
625					630					635					640		
aag	ggg	aga	ggt	aaa	cat	tct	aat	tgc	atc	ata	gat	ttg	gaa	aag	acg	1968	
Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr		
				645					650					655			
cta	gaa	gca	tat	gga	ata	cat	ggc	ctg	ttt	ggg	gca	tca	acc	aca	cgt	2016	
Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg		
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Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn		
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atc	ttt	cac	tgc	cgg	ctg	tct	cag	ggg	agg	aac	ctg	atg	cag	tgg	gtc	2112	
Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val		
	690					695					700						
cgg	tcc	ctg	cag	ctg	ctg	ctg	cag	cca	cac	tct	ctg	gag	tcc	ctc	cac	2160	
Pro	Ser	Leu	Gln	Leu	Leu	Leu	Gln	Pro	His	Ser	Leu	Glu	Ser	Leu	His		
705					710					715					720		
tgc	ttg	tac	gag	act	cgg	aac	aaa	acg	ttc	ctg	aca	caa	gtg	atg	gcc	2208	
Cys	Leu	Tyr	Glu	Thr	Arg	Asn	Lys	Thr	Phe	Leu	Thr	Gln	Val	Met	Ala		
				725					730					735			
cat	ttc	gaa	gaa	atg	ggc	atg	tgt	gta	gaa	aca	gac	atg	gag	ctc	tta	2256	
His	Phe	Glu	Glu	Met	Gly	Met	Cys	Val	Glu	Thr	Asp	Met	Glu	Leu	Leu		
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Val	Cys	Thr	Phe	Cys	Ile	Lys	Phe	Ser	Arg	His	Val	Lys	Lys	Leu	Gln		
		755					760					765					
ctg	att	gag	ggc	agg	cag	cac	aga	tca	aca	tgg	agc	ccc	acc	atg	gta	2352	
Leu	Ile	Glu	Gly	Arg	Gln	His	Arg	Ser	Thr	Trp	Ser	Pro	Thr	Met	Val		
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Val	Leu	Phe	Arg	Trp	Val	Pro	Val	Thr	Asp	Ala	Tyr	Trp	Gln	Ile	Leu		
785					790					795					800		
ttc	tcc	gtc	ctc	aag	gtc	acc	aga	aac	ctg	aag	gag	ctg	gac	cta	agt	2448	
Phe	Ser	Val	Leu	Lys	Val	Thr	Arg	Asn	Leu	Lys	Glu	Leu	Asp	Leu	Ser		
				805					810					815			
gga	aac	tcg	ctg	agc	cac	tct	gca	gtg	aag	agt	ctt	tgt	aag	acc	ctg	2496	
Gly	Asn	Ser	Leu	Ser	His	Ser	Ala	Val	Lys	Ser	Leu	Cys	Lys	Thr	Leu		
			820					825					830				
aga	cgc	cct	cgc	tgc	ctc	ctg	gag	acc	ctg	cgg	ttg	gct	ggc	tgt	ggc	2544	
Arg	Arg	Pro	Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	Gly	Cys	Gly		

835	840	845	
ctc aca gct gag gac tgc aag gac ctt gcc ttt ggg ctg aga gcc aac Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn 850 855 860			2592
cag acc ctg acc gag ctg gac ctg agc ttc aat gtg ctc acg gat gct Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala 865 870 875 880			2640
gga gcc aaa cac ctt tgc cag aga ctg aga cag ccg agc tgc aag cta Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu 885 890 895			2688
cag cga ctg cag ctg gtc agc tgt ggc ctc acg tct gac tgc tgc cag Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln 900 905 910			2736
gac ctg gcc tct gtg ctt agt gcc agc ccc agc ctg aag gag cta gac Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp 915 920 925			2784
ctg cag cag aac aac ctg gat gac gtt ggc gtg cga ctg ctc tgt gag Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu 930 935 940			2832
ggg ctc agg cat cct gcc tgc aaa ctc ata cgc ctg ggg aaa cca agt Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser 945 950 955 960			2880
gtg atg acc cct act gag ggc ctg gat acg gga gag atg agt aat agc Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser 965 970 975			2928
aca tcc tca ctc aag cgg cag aga ctc gga tca gag agg gcg gct tcc Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser 980 985 990			2976
cat gtt gct cag gct aat ctc aaa ctc ctg gac gtg agc aag atc ttc His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe 995 1000 1005			3024
cca att gct gag att gca gag gaa agc tcc cca gag gta gta ccg gtg Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val 1010 1015 1020			3072
gaa ctc ttg tgc gtg cct tct cct gcc tct caa ggg gac ctg cat acg Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr 1025 1030 1035 1040			3120
aag cct ttg ggg act gac gat gac ttc tgg ggc ccc acg ggg cct gtg Lys Pro Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr Gly Pro Val 1045 1050 1055			3168
gct act gag gta gtt gac aaa gaa aag aac ttg tac cga gtt cac ttc Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr Arg Val His Phe 1060 1065 1070			3216

cct gta gct ggc tcc tac cgc tgg ccc aac acg ggt ctc tgc ttt gtg	3264
Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val	
1075 1080 1085	
atg aga gaa gcg gtg acc gtt gag att gaa ttc tgt gtg tgg gac cag	3312
Met Arg Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln	
1090 1095 1100	
ttc ctg ggt gag atc aac cca cag cac agc tgg atg gtg gca ggg cct	3360
Phe Leu Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro	
1105 1110 1115 1120	
ctg ctg gac atc aag gct gag cct gga gct gtg gaa gct gtg cac ctc	3408
Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu	
1125 1130 1135	
cct cac ttt gtg gct ctc caa ggg ggc cat gtg gac aca tcc ctg ttc	3456
Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe	
1140 1145 1150	
caa atg gcc cac ttt aaa gag gag ggg atg ctc ctg gag aag cca gcc	3504
Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala	
1155 1160 1165	
agg gtg gag ctg cat cac ata gtt ctg gaa aac ccc agc ttc tcc ccc	3552
Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro	
1170 1175 1180	
ttg gga gtc ctc ctg aaa atg atc cat aat gcc ctg cgc ttc att ccc	3600
Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro	
1185 1190 1195 1200	
gtc acc tct gtg gtg ttg ctt tac cac cgc gtc cat cct gag gaa gtc	3648
Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val	
1205 1210 1215	
acc ttc cac ctc tac ctg atc cca agt gac tgc tcc att cgg aag gcc	3696
Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala	
1220 1225 1230	
ata gat gat cta gaa atg aaa ttc cag ttt gtg cga atc cac aag cca	3744
Ile Asp Asp Leu Glu Met Lys Phe Gln Phe Val Arg Ile His Lys Pro	
1235 1240 1245	
ccc ccg ctg acc cca ctt tat atg ggc tgt cgt tac act gtg tct ggg	3792
Pro Pro Leu Thr Pro Leu Tyr Met Gly Cys Arg Tyr Thr Val Ser Gly	
1250 1255 1260	
tct ggt tca ggg atg ctg gaa ata ctc ccc aag gaa ctg gag ctc tgc	3840
Ser Gly Ser Gly Met Leu Glu Ile Leu Pro Lys Glu Leu Glu Leu Cys	
1265 1270 1275 1280	
tat cga agc cct gga gaa gac cag ctg ttc tcg gag ttc tac gtt ggc	3888
Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu Phe Tyr Val Gly	
1285 1290 1295	

cac ttg gga tca ggg atc agg ctg caa gtg aaa gac aag aaa gat gag	3936
His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp Lys Lys Asp Glu	
1300 1305 1310	
act ctg gtg tgg gag gcc ttg gtg aaa cca gga gat ctc atg cct gca	3984
Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp Leu Met Pro Ala	
1315 1320 1325	
act act ctg atc cct cca gcc cgc ata gcc gta cct tca cct ctg gat	4032
Thr Thr Leu Ile Pro Pro Ala Arg Ile Ala Val Pro Ser Pro Leu Asp	
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gcc ccg cag ttg ctg cac ttt gtg gac cag tat cga gag cag ctg ata	4080
Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln Leu Ile	
1345 1350 1355 1360	
gcc cga gtg aca tcg gtg gag gtt gtc ttg gac aaa ctg cat gga cag	4128
Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His Gly Gln	
1365 1370 1375	
gtg ctg agc cag gag cag tac gag agg gtg ctg gct gag aac acg agg	4176
Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg	
1380 1385 1390	
ccc agc cag atg cgg aag ctg ttc agc ttg agc cag tcc tgg gac cgg	4224
Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg	
1395 1400 1405	
aag tgc aaa gat gga ctc tac caa gcc ctg aag gag acc cat cct cac	4272
Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His	
1410 1415 1420	
ctc att atg gaa ctc tgg gag aag ggc agc aaa aag gga ctc ctg cca	4320
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ctc agc agc tga	4332
Leu Ser Ser	

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<212> PRT

<213> Homo sapiens

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Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu
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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

Arg	Ala	Trp	Asp	Leu	Ala	Leu	His	Thr	Trp	Glu	Gln	Met	Gly	Leu	Arg	65	70	75	80
Ser	Leu	Cys	Ala	Gln	Ala	Gln	Glu	Gly	Ala	Gly	His	Ser	Pro	Ser	Phe	85	90	95	
Pro	Tyr	Ser	Pro	Ser	Glu	Pro	His	Leu	Gly	Ser	Pro	Ser	Gln	Pro	Thr	100	105	110	
Ser	Thr	Ala	Val	Leu	Met	Pro	Trp	Ile	His	Glu	Leu	Pro	Ala	Gly	Cys	115	120	125	
Thr	Gln	Gly	Ser	Glu	Arg	Arg	Val	Leu	Arg	Gln	Leu	Pro	Asp	Thr	Ser	130	135	140	
Gly	Arg	Arg	Trp	Arg	Glu	Ile	Ser	Ala	Ser	Leu	Leu	Tyr	Gln	Ala	Leu	145	150	155	160
Pro	Ser	Ser	Pro	Asp	His	Glu	Ser	Pro	Ser	Gln	Glu	Ser	Pro	Asn	Ala	165	170	175	
Pro	Thr	Ser	Thr	Ala	Val	Leu	Gly	Ser	Trp	Gly	Ser	Pro	Pro	Gln	Pro	180	185	190	
Ser	Leu	Ala	Pro	Arg	Glu	Gln	Glu	Ala	Pro	Gly	Thr	Gln	Trp	Pro	Leu	195	200	205	
Asp	Glu	Thr	Ser	Gly	Ile	Tyr	Tyr	Thr	Glu	Ile	Arg	Glu	Arg	Glu	Arg	210	215	220	
Glu	Lys	Ser	Glu	Lys	Gly	Arg	Pro	Pro	Trp	Ala	Ala	Val	Val	Gly	Thr	225	230	235	240
Pro	Pro	Gln	Ala	His	Thr	Ser	Leu	Gln	Pro	His	His	His	Pro	Trp	Glu	245	250	255	
Pro	Ser	Val	Arg	Glu	Ser	Leu	Cys	Ser	Thr	Trp	Pro	Trp	Lys	Asn	Glu	260	265	270	
Asp	Phe	Asn	Gln	Lys	Phe	Thr	Gln	Leu	Leu	Leu	Leu	Gln	Arg	Pro	His	275	280	285	
Pro	Arg	Ser	Gln	Asp	Pro	Leu	Val	Lys	Arg	Ser	Trp	Pro	Asp	Tyr	Val	290	295	300	
Glu	Glu	Asn	Arg	Gly	His	Leu	Ile	Glu	Ile	Arg	Asp	Leu	Phe	Gly	Pro	305	310	315	320
Gly	Leu	Asp	Thr	Gln	Glu	Pro	Arg	Ile	Val	Ile	Leu	Gln	Gly	Ala	Ala	325	330	335	
Gly	Ile	Gly	Lys	Ser	Thr	Leu	Ala	Arg	Gln	Val	Lys	Glu	Ala	Trp	Gly	340	345	350	
Arg	Gly	Gln	Leu	Tyr	Gly	Asp	Arg	Phe	Gln	His	Val	Phe	Tyr	Phe	Ser	355	360	365	

Cys	Arg	Glu	Leu	Ala	Gln	Ser	Lys	Val	Val	Ser	Leu	Ala	Glu	Leu	Ile
370						375					380				
Gly	Lys	Asp	Gly	Thr	Ala	Thr	Pro	Ala	Pro	Ile	Arg	Gln	Ile	Leu	Ser
385					390					395					400
Arg	Pro	Glu	Arg	Leu	Leu	Phe	Ile	Leu	Asp	Gly	Val	Asp	Glu	Pro	Gly
				405					410					415	
Trp	Val	Leu	Gln	Glu	Pro	Ser	Ser	Glu	Leu	Cys	Leu	His	Trp	Ser	Gln
			420					425					430		
Pro	Gln	Pro	Ala	Asp	Ala	Leu	Leu	Gly	Ser	Leu	Leu	Gly	Lys	Thr	Ile
		435					440					445			
Leu	Pro	Glu	Ala	Ser	Phe	Leu	Ile	Thr	Ala	Arg	Thr	Thr	Ala	Leu	Gln
	450					455					460				
Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln	Ala	Arg	Trp	Val	Glu	Val	Leu	Gly
465					470				475						480
Phe	Ser	Glu	Ser	Ser	Arg	Lys	Glu	Tyr	Phe	Tyr	Arg	Tyr	Phe	Thr	Asp
				485					490					495	
Glu	Arg	Gln	Ala	Ile	Arg	Ala	Phe	Arg	Leu	Val	Lys	Ser	Asn	Lys	Glu
			500					505					510		
Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro	Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr
		515					520					525			
Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser
	530					535					540				
Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln
545					550				555						560
Ala	Gln	Pro	Leu	Gly	Pro	Gln	Leu	Arg	Asp	Leu	Cys	Ser	Leu	Ala	Ala
				565					570					575	
Glu	Gly	Ile	Trp	Gln	Lys	Lys	Thr	Leu	Phe	Ser	Pro	Asp	Asp	Leu	Arg
			580					585					590		
Lys	His	Gly	Leu	Asp	Gly	Ala	Ile	Ile	Ser	Thr	Phe	Leu	Lys	Met	Gly
		595					600					605			
Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu
	610					615					620				
Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu
625					630					635					640
Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr
				645					650					655	
Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg
			660					665					670		

Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn	675	680	685
Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val	690	695	700
Pro	Ser	Leu	Gln	Leu	Leu	Gln	Pro	His	Ser	Leu	Glu	Ser	Leu	His		705	710	715
Cys	Leu	Tyr	Glu	Thr	Arg	Asn	Lys	Thr	Phe	Leu	Thr	Gln	Val	Met	Ala	725	730	735
His	Phe	Glu	Glu	Met	Gly	Met	Cys	Val	Glu	Thr	Asp	Met	Glu	Leu	Leu	740	745	750
Val	Cys	Thr	Phe	Cys	Ile	Lys	Phe	Ser	Arg	His	Val	Lys	Lys	Leu	Gln	755	760	765
Leu	Ile	Glu	Gly	Arg	Gln	His	Arg	Ser	Thr	Trp	Ser	Pro	Thr	Met	Val	770	775	780
Val	Leu	Phe	Arg	Trp	Val	Pro	Val	Thr	Asp	Ala	Tyr	Trp	Gln	Ile	Leu	785	790	795
Phe	Ser	Val	Leu	Lys	Val	Thr	Arg	Asn	Leu	Lys	Glu	Leu	Asp	Leu	Ser	805	810	815
Gly	Asn	Ser	Leu	Ser	His	Ser	Ala	Val	Lys	Ser	Leu	Cys	Lys	Thr	Leu	820	825	830
Arg	Arg	Pro	Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	Gly	Cys	Gly	835	840	845
Leu	Thr	Ala	Glu	Asp	Cys	Lys	Asp	Leu	Ala	Phe	Gly	Leu	Arg	Ala	Asn	850	855	860
Gln	Thr	Leu	Thr	Glu	Leu	Asp	Leu	Ser	Phe	Asn	Val	Leu	Thr	Asp	Ala	865	870	875
Gly	Ala	Lys	His	Leu	Cys	Gln	Arg	Leu	Arg	Gln	Pro	Ser	Cys	Lys	Leu	885	890	895
Gln	Arg	Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln	900	905	910
Asp	Leu	Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp	915	920	925
Leu	Gln	Gln	Asn	Asn	Leu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu	930	935	940
Gly	Leu	Arg	His	Pro	Ala	Cys	Lys	Leu	Ile	Arg	Leu	Gly	Lys	Pro	Ser	945	950	955
Val	Met	Thr	Pro	Thr	Glu	Gly	Leu	Asp	Thr	Gly	Glu	Met	Ser	Asn	Ser	965	970	975

Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser
980 985 990

His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
995 1000 1005

Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val
1010 1015 1020

Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr
1025 1030 1035 1040

Lys Pro Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr Gly Pro Val
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Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr Arg Val His Phe
1060 1065 1070

Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val
1075 1080 1085

Met Arg Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln
1090 1095 1100

Phe Leu Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro
1105 1110 1115 1120

Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu
1125 1130 1135

Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe
1140 1145 1150

Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala
1155 1160 1165

Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro
1170 1175 1180

Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro
1185 1190 1195 1200

Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val
1205 1210 1215

Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala
1220 1225 1230

Ile Asp Asp Leu Glu Met Lys Phe Gln Phe Val Arg Ile His Lys Pro
1235 1240 1245

Pro Pro Leu Thr Pro Leu Tyr Met Gly Cys Arg Tyr Thr Val Ser Gly
1250 1255 1260

Ser Gly Ser Gly Met Leu Glu Ile Leu Pro Lys Glu Leu Glu Leu Cys
1265 1270 1275 1280

Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu Phe Tyr Val Gly
1285 1290 1295

His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp Lys Lys Asp Glu
1300 1305 1310

Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp Leu Met Pro Ala
1315 1320 1325

Thr Thr Leu Ile Pro Pro Ala Arg Ile Ala Val Pro Ser Pro Leu Asp
1330 1335 1340

Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln Leu Ile
1345 1350 1355 1360

Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His Gly Gln
1365 1370 1375

Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg
1380 1385 1390

Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg
1395 1400 1405

Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His
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1425 1430 1435 1440

Leu Ser Ser

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Val Asn Tyr Leu Gly Gly Thr Phe Pro Gly Asp Ile Cys Ser Glu Glu
20 25 30
aat caa ata gtt tcc tct tat gct tct aaa gtc tgt ttt gag atc gaa 144
Asn Gln Ile Val Ser Ser Tyr Ala Ser Lys Val Cys Phe Glu Ile Glu
35 40 45
gaa gat tat aaa aat cgt cag ttt ctg ggg cct gaa gga aat gtg gat 192

Glu	Asp	Tyr	Lys	Asn	Arg	Gln	Phe	Leu	Gly	Pro	Glu	Gly	Asn	Val	Asp	
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Val	Glu	Leu	Ile	Asp	Lys	Ser	Thr	Asn	Arg	Tyr	Ser	Val	Trp	Phe	Pro	
65					70					75					80	
act	gct	ggc	tgg	tat	ctg	tgg	tca	gcc	aca	ggc	ctc	ggc	ttc	ctg	gta	288
Thr	Ala	Gly	Trp	Tyr	Leu	Trp	Ser	Ala	Thr	Gly	Leu	Gly	Phe	Leu	Val	
				85					90					95		
agg	gat	gag	gtc	aca	gtg	acg	att	gcg	ttt	ggt	tcc	tgg	agt	cag	cac	336
Arg	Asp	Glu	Val	Thr	Val	Thr	Ile	Ala	Phe	Gly	Ser	Trp	Ser	Gln	His	
			100					105					110			
ctg	gcc	ctg	gac	ctg	cag	cac	cat	gaa	cag	tgg	ctg	gtg	ggc	ggc	ccc	384
Leu	Ala	Leu	Asp	Leu	Gln	His	His	Glu	Gln	Trp	Leu	Val	Gly	Gly	Pro	
		115					120					125				
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Leu	Phe	Asp	Val	Thr	Ala	Glu	Pro	Glu	Glu	Ala	Val	Ala	Glu	Ile	His	
	130					135					140					
ctc	ccc	cac	ttc	atc	tcc	ctc	caa	ggt	gag	gtg	gac	gtc	tcc	tgg	ttt	480
Leu	Pro	His	Phe	Ile	Ser	Leu	Gln	Gly	Glu	Val	Asp	Val	Ser	Trp	Phe	
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ctc	ggt	gcc	cat	ttt	aag	aat	gaa	ggg	atg	gtc	ctg	gag	cat	cca	gcc	528
Leu	Val	Ala	His	Phe	Lys	Asn	Glu	Gly	Met	Val	Leu	Glu	His	Pro	Ala	
			165					170						175		
cgg	gtg	gag	cct	ttc	tat	gct	gtc	ctg	gaa	agc	ccc	agc	ttc	tct	ctg	576
Arg	Val	Glu	Pro	Phe	Tyr	Ala	Val	Leu	Glu	Ser	Pro	Ser	Phe	Ser	Leu	
			180					185					190			
atg	ggc	atc	ctg	ctg	cgg	atc	gcc	agt	ggg	act	cgc	ctc	tcc	atc	ccc	624
Met	Gly	Ile	Leu	Leu	Arg	Ile	Ala	Ser	Gly	Thr	Arg	Leu	Ser	Ile	Pro	
		195					200					205				
atc	act	tcc	aac	aca	ttg	atc	tat	tat	cac	ccc	cac	ccc	gaa	gat	att	672
Ile	Thr	Ser	Asn	Thr	Leu	Ile	Tyr	Tyr	His	Pro	His	Pro	Glu	Asp	Ile	
	210					215					220					
aag	ttc	cac	ttg	tac	ctt	gtc	ccc	agc	gac	gcc	ttg	cta	aca	aag	gcg	720
Lys	Phe	His	Leu	Tyr	Leu	Val	Pro	Ser	Asp	Ala	Leu	Leu	Thr	Lys	Ala	
225					230					235					240	
ata	gat	gat	gag	gaa	gat	cgc	ttc	cat	ggt	gtg	cgc	ctg	cag	act	tcg	768
Ile	Asp	Asp	Glu	Glu	Asp	Arg	Phe	His	Gly	Val	Arg	Leu	Gln	Thr	Ser	
				245					250					255		
ccc	cca	atg	gaa	ccc	ctg	aac	ttt	ggt	tcc	agt	tat	att	gtg	tct	aat	816
Pro	Pro	Met	Glu	Pro	Leu	Asn	Phe	Gly	Ser	Ser	Tyr	Ile	Val	Ser	Asn	
			260					265					270			
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Ser	Ala	Asn	Leu	Lys	Val	Met	Pro	Lys	Glu	Leu	Lys	Leu	Ser	Tyr	Arg	

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Ser Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln Met			
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Lys Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr Leu			
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gtg tgg gat act gag gtg aag cca gtg gat ctc cag ctt gta gct gca			1008
Val Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala Ala			
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tca gcc cct cct cct ttc tca ggt gca gcc ttt gtg aag gag aac cac			1056
Ser Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn His			
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cgg caa ctc caa gcc agg atg ggg gac ctg aaa ggg gtg ctc gat gat			1104
Arg Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp Asp			
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ctc cag gac aat gag gtt ctt act gag aat gag aag gag ctg gtg gag			1152
Leu Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu			
	370	375	380
cag gaa aag aca cgg cag agc aag aat gag gcc ttg ctg agc atg gtg			1200
Gln Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met Val			
	385	390	395
gag aag aaa ggg gac ctg gcc ctg gac gtg ctc ttc aga agc att agt			1248
Glu Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile Ser			
	405	410	415
gaa agg gac cct tac ctc gtg tcc tat ctt aga cag cag aat ttg taa			1296
Glu Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu			
	420	425	430
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cagaaatgtg atcattgatt tcagtgttca agacagaaga agactgggta acatctatca			1416
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Val	Glu	Leu	Ile	Asp	Lys	Ser	Thr	Asn	Arg	Tyr	Ser	Val	Trp	Phe	Pro	
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Thr	Ala	Gly	Trp	Tyr	Leu	Trp	Ser	Ala	Thr	Gly	Leu	Gly	Phe	Leu	Val	
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Arg	Asp	Glu	Val	Thr	Val	Thr	Ile	Ala	Phe	Gly	Ser	Trp	Ser	Gln	His	
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Leu	Ala	Leu	Asp	Leu	Gln	His	His	Glu	Gln	Trp	Leu	Val	Gly	Gly	Pro	
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Leu	Phe	Asp	Val	Thr	Ala	Glu	Pro	Glu	Glu	Ala	Val	Ala	Glu	Ile	His	
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Leu	Pro	His	Phe	Ile	Ser	Leu	Gln	Gly	Glu	Val	Asp	Val	Ser	Trp	Phe	
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Leu	Val	Ala	His	Phe	Lys	Asn	Glu	Gly	Met	Val	Leu	Glu	His	Pro	Ala	
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Arg	Val	Glu	Pro	Phe	Tyr	Ala	Val	Leu	Glu	Ser	Pro	Ser	Phe	Ser	Leu	
180					185					190						
Met	Gly	Ile	Leu	Leu	Arg	Ile	Ala	Ser	Gly	Thr	Arg	Leu	Ser	Ile	Pro	
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Ile	Thr	Ser	Asn	Thr	Leu	Ile	Tyr	Tyr	His	Pro	His	Pro	Glu	Asp	Ile	
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Lys	Phe	His	Leu	Tyr	Leu	Val	Pro	Ser	Asp	Ala	Leu	Leu	Thr	Lys	Ala	
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Ile	Asp	Asp	Glu	Glu	Asp	Arg	Phe	His	Gly	Val	Arg	Leu	Gln	Thr	Ser	
245					250					255						
Pro	Pro	Met	Glu	Pro	Leu	Asn	Phe	Gly	Ser	Ser	Tyr	Ile	Val	Ser	Asn	
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Ser	Ala	Asn	Leu	Lys	Val	Met	Pro	Lys	Glu	Leu	Lys	Leu	Ser	Tyr	Arg	
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Ser	Pro	Gly	Glu	Ile	Gln	His	Phe	Ser	Lys	Phe	Tyr	Ala	Gly	Gln	Met	
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Lys	Glu	Pro	Ile	Gln	Leu	Glu	Ile	Thr	Glu	Lys	Arg	His	Gly	Thr	Leu	
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Val	Trp	Asp	Thr	Glu	Val	Lys	Pro	Val	Asp	Leu	Gln	Leu	Val	Ala	Ala	

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Arg	Gln	Leu	Gln	Ala	Arg	Met	Gly	Asp	Leu	Lys	Gly	Val	Leu	Asp	Asp	
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Leu	Gln	Asp	Asn	Glu	Val	Leu	Thr	Glu	Asn	Glu	Lys	Glu	Leu	Val	Glu	
370								375					380			
Gln	Glu	Lys	Thr	Arg	Gln	Ser	Lys	Asn	Glu	Ala	Leu	Leu	Ser	Met	Val	
385								390					395			
Glu	Lys	Lys	Gly	Asp	Leu	Ala	Leu	Asp	Val	Leu	Phe	Arg	Ser	Ile	Ser	
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415								420					425			
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Construct
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1 5 10 15																
aag aag gag gag ctg aag gag ttc cag ctt ctg ctc gcc aat aaa gcg	96															
Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala																
20 25 30																
cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg	144															
His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr																
35 40 45																
agt ggc atg gag gtg gcc tcg tac ctg gtg gct cag tat ggg gag cag	192															
Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln																
50 55 60																
cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg	240															
Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg																
65 70 75 80																
tca ctg tgc gcc caa gcc cag gaa ggg gca gcc cac tct ccc tca ttc	288															
Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe																

			85			90			95							
ccc Pro	tac Tyr	agc Ser	cca Pro 100	agt Ser	gaa Glu	ccc Pro	cac His	ctg Leu 105	ggg Gly	tct Ser	ccc Pro	agc Ser	caa Gln 110	ccc Pro	acc Thr	336
tcc Ser	acc Thr	gca Ala 115	gtg Val	cta Leu	atg Met	ccc Pro	tgg Trp 120	atc Ile	cat His	gaa Glu	ttg Leu	ccg Pro 125	gcg Ala	ggg Gly	tgc Cys	384
acc Thr	cag Gln 130	ggc Gly	tca Ser	gag Glu	aga Arg	agg Arg 135	gtt Val	ttg Leu	aga Arg	cag Gln	ctg Leu 140	cct Pro	gac Asp	aca Thr	tct Ser	432
gga Gly 145	cgc Arg	cgc Arg	tgg Trp	aga Arg	gaa Glu 150	atc Ile	tct Ser	gcc Ala	tca Ser	ctc Leu 155	ctc Leu	tac Tyr	caa Gln	gct Ala	ctt Leu 160	480
cca Pro	agc Ser	tcc Ser	cca Pro 165	gac Asp	cat His	gag Glu	tct Ser	cca Pro 170	agc Ser	cag Gln	gag Glu	tca Ser	ccc Pro 175	aac Asn	gcc Ala	528
ccc Pro	aca Thr	tcc Ser	aca Thr 180	gca Ala	gtg Val	ctg Leu	ggg Gly 185	agc Ser	tgg Trp	gga Gly	tcc Ser	cca Pro 190	cct Pro	cag Gln	ccc Pro	576
agc Ser	cta Leu 195	gca Ala	ccc Pro	aga Arg	gag Glu	cag Gln	gag Glu 200	gct Ala	cct Pro	ggg Gly	acc Thr	caa Gln 205	tgg Trp	cct Pro	ctg Leu	624
gat Asp	gaa Glu 210	acg Thr	tca Ser	gga Gly	att Ile	tac Tyr 215	tac Tyr	aca Thr	gaa Glu	atc Ile	aga Arg 220	gaa Glu	aga Arg	gag Glu	aga Arg	672
gag Glu 225	aaa Lys	tca Ser	gag Glu	aaa Lys	ggc Gly 230	agg Arg	ccc Pro	cca Pro	tgg Trp	gca Ala 235	gcg Ala	gtg Val	gta Val	gga Gly	acg Thr 240	720
ccc Pro	cca Pro	cag Gln	gcg Ala 245	cac His	acc Thr	agc Ser	cta Leu	cag Gln 250	ccc Pro	cac His	cac His	cac His	cca Pro 255	tgg Trp	gag Glu	768
cct Pro	tct Ser	gtg Val	aga Arg 260	gag Glu	agc Ser	ctc Leu	tgt Cys	tcc Ser 265	aca Thr	tgg Trp	ccc Pro	tgg Trp	aaa Lys 270	aat Asn	gag Glu	816
gat Asp	ttt Phe 275	aac Asn	caa Gln	aaa Lys	ttc Phe	aca Thr 280	cag Gln	ctg Leu	cta Leu	ctt Leu	cta Leu	caa Gln 285	aga Arg	cct Pro	cac His	864
ccc Pro	aga Arg 290	agc Ser	caa Gln	gat Asp	ccc Pro	ctg Leu 295	gtc Val	aag Lys	aga Arg	agc Ser	tgg Trp 300	cct Pro	gat Asp	tat Tyr	gtg Val	912
gag Glu 305	gag Glu	aat Asn	cga Arg	gga Gly	cat His 310	tta Leu	att Ile	gag Glu	atc Ile	aga Arg 315	gac Asp	tta Leu	ttt Phe	ggc Gly	cca Pro 320	960

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Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly	
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Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile	
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Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser	
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Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly	
405 410 415	
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Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln	
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cca cag ccg gcg gat gca ctg ctg ggc agt ttg ctg ggg aaa act ata	1344
Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile	
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Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln	
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Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly	
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Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp	
485 490 495	
gaa agg caa gca att aga gcc ttt agg ttg gtc aaa tca aac aaa gag	1536
Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu	
500 505 510	
ctc tgg gcc ctg tgt ctt gtg ccc tgg gtg tcc tgg ctg gcc tgc act	1584
Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr	
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tgc ctg atg cag cag atg aag cgg aag gaa aaa ctc aca ctg act tcc	1632
Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser	
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Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln	
545 550 555 560	
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Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala	
565 570 575	
gag ggc atc tgg caa aaa aag acc ctt ttc agt cca gat gac ctc agg	1776
Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg	
580 585 590	
aag cat ggg tta gat ggg gcc atc atc tcc acc ttc ttg aag atg ggt	1824
Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly	
595 600 605	
att ctt caa gag cac ccc atc cct ctg agc tac agc ttc att cac ctc	1872
Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu	
610 615 620	
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Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu	
625 630 635 640	
aag ggg aga ggt aaa cat tct aat tgc atc ata gat ttg gaa aag acg	1968
Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr	
645 650 655	
cta gaa gca tat gga ata cat ggc ctg ttt ggg gca tca acc aca cgt	2016
Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg	
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ttc cta ttg ggc ctg tta agt gat gag ggg gag aga gag atg gag aac	2064
Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn	
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Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val	
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cgg tcc ctg cag ctg ctg ctg cag cca cac tct ctg gag tcc ctc cac	2160
Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His	
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Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala	
725 730 735	
cat ttc gaa gaa atg ggc atg tgt gta gaa aca gac atg gag ctc tta	2256
His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu	
740 745 750	
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Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln	
755 760 765	
ctg att gag ggc agg cag cac aga tca aca tgg agc ccc acc atg gta	2352

Leu	Ile	Glu	Gly	Arg	Gln	His	Arg	Ser	Thr	Trp	Ser	Pro	Thr	Met	Val	
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Val	Leu	Phe	Arg	Trp	Val	Pro	Val	Thr	Asp	Ala	Tyr	Trp	Gln	Ile	Leu	
785					790					795					800	
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Phe	Ser	Val	Leu	Lys	Val	Thr	Arg	Asn	Leu	Lys	Glu	Leu	Asp	Leu	Ser	
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Gly	Asn	Ser	Leu	Ser	His	Ser	Ala	Val	Lys	Ser	Leu	Cys	Lys	Thr	Leu	
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Arg	Arg	Pro	Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	Gly	Cys	Gly	
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Leu	Thr	Ala	Glu	Asp	Cys	Lys	Asp	Leu	Ala	Phe	Gly	Leu	Arg	Ala	Asn	
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Gln	Thr	Leu	Thr	Glu	Leu	Asp	Leu	Ser	Phe	Asn	Val	Leu	Thr	Asp	Ala	
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Gly	Ala	Lys	His	Leu	Cys	Gln	Arg	Leu	Arg	Gln	Pro	Ser	Cys	Lys	Leu	
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cag	cga	ctg	cag	ctg	gtc	agc	tgt	ggc	ctc	acg	tct	gac	tgc	tgc	cag	2736
Gln	Arg	Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln	
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gac	ctg	gcc	tct	gtg	ctt	agt	gcc	agc	ccc	agc	ctg	aag	gag	cta	gac	2784
Asp	Leu	Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp	
		915					920					925				
ctg	cag	cag	aac	aac	ctg	gat	gac	gtt	ggc	gtg	cga	ctg	ctc	tgt	gag	2832
Leu	Gln	Gln	Asn	Asn	Leu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu	
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Gly	Leu	Arg	His	Pro	Ala	Cys	Lys	Leu	Ile	Arg	Leu	Gly	Leu	Asp	Gln	
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aca	act	ctg	agt	gat	gag	atg	agg	cag	gaa	ctg	agg	gcc	ctg	gag	cag	2928
Thr	Thr	Leu	Ser	Asp	Glu	Met	Arg	Gln	Glu	Leu	Arg	Ala	Leu	Glu	Gln	
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Glu	Lys	Pro	Gln	Leu	Leu	Ile	Phe	Ser	Arg	Arg	Lys	Pro	Ser	Val	Met	
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Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His Val			
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Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe Pro Ile			
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gct gag att gca gag gaa agc tcc cca gag gta gta ccg gtg gaa ctc			3168
Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val Glu Leu			
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ttg tgc gtg cct tct cct gcc tct caa ggg gac ctg cat acg aag cct			3216
Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr Lys Pro			
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Leu Gly Thr Asp Asp Asp Phe Leu Gly Pro Glu Gly Asn Val Asp Val			
1075	1080	1085	
gag ttg att gat aag agc aca aac aga tac agc gtt tgg ttc ccc act			3312
Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe Pro Thr			
1090	1095	1100	
gct ggc tgg tat ctg tgg tca gcc aca ggc ctc ggc ttc ctg gta agg			3360
Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu Val Arg			
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gat gag gtc aca gtg acg att gcg ttt ggt tcc tgg agt cag cac ctg			3408
Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln His Leu			
1125	1130	1135	
gcc ctg gac ctg cag cac cat gaa cag tgg ctg gtg ggc ggc ccc ttg			3456
Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly Pro Leu			
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Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp Phe Leu			
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Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro Ala Arg			
1185	1190	1195	1200
gtg gag cct ttc tat gct gtc ctg gaa agc ccc agc ttc tct ctg atg			3648
Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser Leu Met			
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ggc atc ctg ctg cgg atc gcc agt ggg act cgc ctc tcc atc ccc atc			3696
Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile Pro Ile			
1220	1225	1230	

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Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp Ile Lys	
1235 1240 1245	
ttc cac ttg tac ctt gtc ccc agc gac gcc ttg cta aca aag gcg' ata	3792
Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys Ala Ile	
1250 1255 1260	
gat gat gag gaa gat cgc ttc cat ggt gtg cgc ctg cag act tcg ccc	3840
Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr Ser Pro	
1265 1270 1275 1280	
cca atg gaa ccc ctg aac ttt ggt tcc agt tat att gtg tct aat tct	3888
Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser Asn Ser	
1285 1290 1295	
gct aac ctg aaa gta atg ccc aag gag ttg aaa ttg tcc tac agg agc	3936
Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr Arg Ser	
1300 1305 1310	
cct gga gaa att cag cac ttc tca aaa ttc tat gct ggg cag atg aag	3984
Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln Met Lys	
1315 1320 1325	
gaa ccc att caa ctt gag att act gaa aaa aga cat ggg act ttg gtg	4032
Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr Leu Val	
1330 1335 1340	
tggt gat act gag gtg aag cca gtg gat ctc cag ctt gta gct gca tca	4080
Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala Ala Ser	
1345 1350 1355 1360	
gcc cct cct cct ttc tca ggt gca gcc ttt gtg aag gag aac cac cgg	4128
Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn His Arg	
1365 1370 1375	
caa ctc caa gcc agg atg ggg gac ctg aaa ggg gtg ctc gat gat ctc	4176
Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp Asp Leu	
1380 1385 1390	
cag gac aat gag gtt ctt act gagaat gag aag gag ctg gtg gag cag	4224
Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu Gln	
1395 1400 1405	
gaa aag aca cgg cag agc aag aat gag gcc ttg ctg agc atg gtg gag	4272
Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met Val Glu	
1410 1415 1420	
aag aaa ggg gac ctg gcc ctg gac gtg ctc ttc aga agc att agt gaa	4320
Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile Ser Glu	
1425 1430 1435 1440	
agg gac cct tac ctc gtg tcc tat ctt aga cag cag aat ttg taa	4365
Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu	
1445 1450	

aatgagtcag ttaggtagtc tggaagagag aatccagcgt tctcattgga aatggataaa 4425
cagaaatgtg atcattgatt tcagtgttca agacagaaga agactgggta acatctatca 4485
cacaggcttt caggacagac ttgtaacctg gcatgtacct attgactgta tcctcatgca 4545
ttttcctcaa g 4556

<210> 10

<211> 1454

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Construct

<400> 10

Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu
1 5 10 15

Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala
165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

Glu	Lys	Ser	Glu	Lys	Gly	Arg	Pro	Pro	Trp	Ala	Ala	Val	Val	Gly	Thr
225					230					235					240
Pro	Pro	Gln	Ala	His	Thr	Ser	Leu	Gln	Pro	His	His	His	Pro	Trp	Glu
				245					250					255	
Pro	Ser	Val	Arg	Glu	Ser	Leu	Cys	Ser	Thr	Trp	Pro	Trp	Lys	Asn	Glu
			260					265					270		
Asp	Phe	Asn	Gln	Lys	Phe	Thr	Gln	Leu	Leu	Leu	Leu	Gln	Arg	Pro	His
		275					280					285			
Pro	Arg	Ser	Gln	Asp	Pro	Leu	Val	Lys	Arg	Ser	Trp	Pro	Asp	Tyr	Val
	290					295					300				
Glu	Glu	Asn	Arg	Gly	His	Leu	Ile	Glu	Ile	Arg	Asp	Leu	Phe	Gly	Pro
305					310					315					320
Gly	Leu	Asp	Thr	Gln	Glu	Pro	Arg	Ile	Val	Ile	Leu	Gln	Gly	Ala	Ala
				325					330					335	
Gly	Ile	Gly	Lys	Ser	Thr	Leu	Ala	Arg	Gln	Val	Lys	Glu	Ala	Trp	Gly
			340					345					350		
Arg	Gly	Gln	Leu	Tyr	Gly	Asp	Arg	Phe	Gln	His	Val	Phe	Tyr	Phe	Ser
		355					360					365			
Cys	Arg	Glu	Leu	Ala	Gln	Ser	Lys	Val	Val	Ser	Leu	Ala	Glu	Leu	Ile
	370					375					380				
Gly	Lys	Asp	Gly	Thr	Ala	Thr	Pro	Ala	Pro	Ile	Arg	Gln	Ile	Leu	Ser
385					390					395					400
Arg	Pro	Glu	Arg	Leu	Leu	Phe	Ile	Leu	Asp	Gly	Val	Asp	Glu	Pro	Gly
				405					410					415	
Trp	Val	Leu	Gln	Glu	Pro	Ser	Ser	Glu	Leu	Cys	Leu	His	Trp	Ser	Gln
			420					425					430		
Pro	Gln	Pro	Ala	Asp	Ala	Leu	Leu	Gly	Ser	Leu	Leu	Gly	Lys	Thr	Ile
		435					440					445			
Leu	Pro	Glu	Ala	Ser	Phe	Leu	Ile	Thr	Ala	Arg	Thr	Thr	Ala	Leu	Gln
	450					455					460				
Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln	Ala	Arg	Trp	Val	Glu	Val	Leu	Gly
465					470					475					480
Phe	Ser	Glu	Ser	Ser	Arg	Lys	Glu	Tyr	Phe	Tyr	Arg	Tyr	Phe	Thr	Asp
				485					490					495	
Glu	Arg	Gln	Ala	Ile	Arg	Ala	Phe	Arg	Leu	Val	Lys	Ser	Asn	Lys	Glu
			500					505					510		
Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro	Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr
		515					520					525			

Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser
530						535					540				
Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln
545					550					555					560
Ala	Gln	Pro	Leu	Gly	Pro	Gln	Leu	Arg	Asp	Leu	Cys	Ser	Leu	Ala	Ala
				565					570					575	
Glu	Gly	Ile	Trp	Gln	Lys	Lys	Thr	Leu	Phe	Ser	Pro	Asp	Asp	Leu	Arg
			580					585					590		
Lys	His	Gly	Leu	Asp	Gly	Ala	Ile	Ile	Ser	Thr	Phe	Leu	Lys	Met	Gly
		595					600					605			
Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu
	610					615					620				
Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu
625					630					635					640
Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr
				645					650					655	
Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg
			660					665					670		
Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn
	675						680					685			
Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val
	690					695					700				
Pro	Ser	Leu	Gln	Leu	Leu	Leu	Gln	Pro	His	Ser	Leu	Glu	Ser	Leu	His
705					710					715					720
Cys	Leu	Tyr	Glu	Thr	Arg	Asn	Lys	Thr	Phe	Leu	Thr	Gln	Val	Met	Ala
				725					730					735	
His	Phe	Glu	Glu	Met	Gly	Met	Cys	Val	Glu	Thr	Asp	Met	Glu	Leu	Leu
		740						745					750		
Val	Cys	Thr	Phe	Cys	Ile	Lys	Phe	Ser	Arg	His	Val	Lys	Lys	Leu	Gln
	755						760					765			
Leu	Ile	Glu	Gly	Arg	Gln	His	Arg	Ser	Thr	Trp	Ser	Pro	Thr	Met	Val
	770					775					780				
Val	Leu	Phe	Arg	Trp	Val	Pro	Val	Thr	Asp	Ala	Tyr	Trp	Gln	Ile	Leu
785					790					795					800
Phe	Ser	Val	Leu	Lys	Val	Thr	Arg	Asn	Leu	Lys	Glu	Leu	Asp	Leu	Ser
			805						810					815	
Gly	Asn	Ser	Leu	Ser	His	Ser	Ala	Val	Lys	Ser	Leu	Cys	Lys	Thr	Leu
		820						825					830		

Arg	Arg	Pro	Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	Gly	Cys	Gly
		835					840						845		
Leu	Thr	Ala	Glu	Asp	Cys	Lys	Asp	Leu	Ala	Phe	Gly	Leu	Arg	Ala	Asn
	850					855					860				
Gln	Thr	Leu	Thr	Glu	Leu	Asp	Leu	Ser	Phe	Asn	Val	Leu	Thr	Asp	Ala
865					870					875					880
Gly	Ala	Lys	His	Leu	Cys	Gln	Arg	Leu	Arg	Gln	Pro	Ser	Cys	Lys	Leu
				885					890					895	
Gln	Arg	Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln
			900					905					910		
Asp	Leu	Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp
		915					920					925			
Leu	Gln	Gln	Asn	Asn	Leu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu
	930					935					940				
Gly	Leu	Arg	His	Pro	Ala	Cys	Lys	Leu	Ile	Arg	Leu	Gly	Leu	Asp	Gln
945					950					955					960
Thr	Thr	Leu	Ser	Asp	Glu	Met	Arg	Gln	Glu	Leu	Arg	Ala	Leu	Glu	Gln
				965					970					975	
Glu	Lys	Pro	Gln	Leu	Leu	Ile	Phe	Ser	Arg	Arg	Lys	Pro	Ser	Val	Met
			980					985					990		
Thr	Pro	Thr	Glu	Gly	Leu	Asp	Thr	Gly	Glu	Met	Ser	Asn	Ser	Thr	Ser
		995					1000					1005			
Ser	Leu	Lys	Arg	Gln	Arg	Leu	Gly	Ser	Glu	Arg	Ala	Ala	Ser	His	Val
1010						1015					1020				
Ala	Gln	Ala	Asn	Leu	Lys	Leu	Leu	Asp	Val	Ser	Lys	Ile	Phe	Pro	Ile
1025					1030					1035					1040
Ala	Glu	Ile	Ala	Glu	Glu	Ser	Ser	Pro	Glu	Val	Val	Pro	Val	Glu	Leu
				1045					1050					1055	
Leu	Cys	Val	Pro	Ser	Pro	Ala	Ser	Gln	Gly	Asp	Leu	His	Thr	Lys	Pro
			1060					1065					1070		
Leu	Gly	Thr	Asp	Asp	Asp	Phe	Leu	Gly	Pro	Glu	Gly	Asn	Val	Asp	Val
		1075					1080					1085			
Glu	Leu	Ile	Asp	Lys	Ser	Thr	Asn	Arg	Tyr	Ser	Val	Trp	Phe	Pro	Thr
1090						1095					1100				
Ala	Gly	Trp	Tyr	Leu	Trp	Ser	Ala	Thr	Gly	Leu	Gly	Phe	Leu	Val	Arg
1105					1110					1115					1120
Asp	Glu	Val	Thr	Val	Thr	Ile	Ala	Phe	Gly	Ser	Trp	Ser	Gln	His	Leu
				1125					1130					1135	

Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly Pro Leu
1140 1145 1150

Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile His Leu
1155 1160 1165

Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp Phe Leu
1170 1175 1180

Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro Ala Arg
1185 1190 1195 1200

Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser Leu Met
1205 1210 1215

Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile Pro Ile
1220 1225 1230

Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp Ile Lys
1235 1240 1245

Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys Ala Ile
1250 1255 1260

Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr Ser Pro
1265 1270 1275 1280

Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser Asn Ser
1285 1290 1295

Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr Arg Ser
1300 1305 1310

Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln Met Lys
1315 1320 1325

Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr Leu Val
1330 1335 1340

Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala Ala Ser
1345 1350 1355 1360

Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn His Arg
1365 1370 1375

Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp Asp Leu
1380 1385 1390

Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu Gln
1395 1400 1405

Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met Val Glu
1410 1415 1420

Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile Ser Glu
1425 1430 1435 1440

Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu
1445 1450

<210> 11
<211> 4466
<212> DNA
<213> Artificial Sequence

<220>
<221> CDS
<222> (1)..(4272)

<220>
<223> Description of Artificial Sequence: Synthetic
Construct

<400> 11
atg gct ggc gga gcc tgg ggc cgc ctg gcc tgt tac ttg gag ttc ctg 48
Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu
1 5 10 15

aag aag gag gag ctg aag gag ttc cag ctt ctg ctc gcc aat aaa gcg 96
Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg 144
His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

agt ggc atg gag gtg gcc tcg tac ctg gtg gct cag tat ggg gag cag 192
Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg 240
Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288
Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe
85 90 95

ccc tac agc cca agt gaa ccc cac ctg ggg tct ccc agc caa ccc acc 336
Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr
100 105 110

tcc acc gca gtg cta atg ccc tgg atc cat gaa ttg ccg gcg ggg tgc 384
Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

acc cag ggc tca gag aga agg gtt ttg aga cag ctg cct gac aca tct 432
Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser
130 135 140

gga cgc cgc tgg aga gaa atc tct gcc tca ctc ctc tac caa gct ctt 480
Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu

145	150	155	160	
cca agc tcc cca gac cat gag tct cca agc cag gag tca ccc aac gcc				528
Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala				
	165	170	175	
ccc aca tcc aca gca gtg ctg ggg agc tgg gga tcc cca cct cag ccc				576
Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro				
	180	185	190	
agc cta gca ccc aga gag cag gag gct cct ggg acc caa tgg cct ctg				624
Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu				
	195	200	205	
gat gaa acg tca gga att tac tac aca gaa atc aga gaa aga gag aga				672
Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg				
	210	215	220	
gag aaa tca gag aaa ggc agg ccc cca tgg gca gcg gtg gta gga acg				720
Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr				
	225	230	235	240
ccc cca cag gcg cac acc agc cta cag ccc cac cac cac cca tgg gag				768
Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu				
	245	250	255	
cct tct gtg aga gag agc ctc tgt tcc aca tgg ccc tgg aaa aat gag				816
Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu				
	260	265	270	
gat ttt aac caa aaa ttc aca cag ctg cta ctt cta caa aga cct cac				864
Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Leu Gln Arg Pro His				
	275	280	285	
ccc aga agc caa gat ccc ctg gtc aag aga agc tgg cct gat tat gtg				912
Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val				
	290	295	300	
gag gag aat cga gga cat tta att gag atc aga gac tta ttt ggc cca				960
Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro				
	305	310	315	320
ggc ctg gat acc caa gaa cct cgc ata gtc ata ctg cag ggg gct gct				1008
Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala				
	325	330	335	
gga att ggg aag tca aca ctg gcc agg cag gtg aag gaa gcc tgg ggg				1056
Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly				
	340	345	350	
aga ggc cag ctg tat ggg gac cgc ttc cag cat gtc ttc tac ttc agc				1104
Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser				
	355	360	365	
tgc aga gag ctg gcc cag tcc aag gtg gtg agt ctc gct gag ctc atc				1152
Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile				
	370	375	380	

gga aaa gat ggg aca gcc act ccg gct ccc att aga cag atc ctg tct	1200
Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser	
385 390 395 400	
agg cca gag cgg ctg ctc ttc atc ctc gat ggt gta gat gag cca gga	1248
Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly	
405 410 415	
tgg gtc ttg cag gag ccg agt tct gag ctc tgt ctg cac tgg agc cag	1296
Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln	
420 425 430	
cca cag ccg gcg gat gca ctg ctg ggc agt ttg ctg ggg aaa act ata	1344
Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile	
435 440 445	
ctt ccc gag gca tcc ttc ctg atc acg gct ccg acc aca gct ctg cag	1392
Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln	
450 455 460	
aac ctc att cct tct ttg gag cag gca cgt tgg gta gag gtc ctg ggg	1440
Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly	
465 470 475 480	
ttc tct gag tcc agc agg aag gaa tat ttc tac aga tat ttc aca gat	1488
Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp	
485 490 495	
gaa agg caa gca att aga gcc ttt agg ttg gtc aaa tca aac aaa gag	1536
Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu	
500 505 510	
ctc tgg gcc ctg tgt ctt gtg ccc tgg gtg tcc tgg ctg gcc tgc act	1584
Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr	
515 520 525	
tgc ctg atg cag cag atg aag ccg aag gaa aaa ctc aca ctg act tcc	1632
Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser	
530 535 540	
aag acc acc aca acc ctc tgt cta cat tac ctt gcc cag gct ctc caa	1680
Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln	
545 550 555 560	
gct cag cca ttg gga ccc cag ctc aga gac ctc tgc tct ctg gct gct	1728
Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala	
565 570 575	
gag ggc atc tgg caa aaa aag acc ctt ttc agt cca gat gac ctc agg	1776
Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg	
580 585 590	
aag cat ggg tta gat ggg gcc atc atc tcc acc ttc ttg aag atg ggt	1824
Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly	
595 600 605	

att ctt caa gag cac ccc atc cct ctg agc tac agc ttc att cac ctc	1872
Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu	
610 615 620	
tgt ttc caa gag ttc ttt gca gca atg tcc tat gtc ttg gag gat gag	1920
Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu	
625 630 635 640	
aag ggg aga ggt aaa cat tct aat tgc atc ata gat ttg gaa aag acg	1968
Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr	
645 650 655	
cta gaa gca tat gga ata cat ggc ctg ttt ggg gca tca acc aca cgt	2016
Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg	
660 665 670	
ttc cta ttg ggc ctg tta agt gat gag ggg gag aga gag atg gag aac	2064
Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn	
675 680 685	
atc ttt cac tgc cgg ctg tct cag ggg agg aac ctg atg cag tgg gtc	2112
Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val	
690 695 700	
ccg tcc ctg cag ctg ctg ctg cag cca cac tct ctg gag tcc ctc cac	2160
Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His	
705 710 715 720	
tgc ttg tac gag act cgg aac aaa acg ttc ctg aca caa gtg atg gcc	2208
Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala	
725 730 735	
cat ttc gaa gaa atg ggc atg tgt gta gaa aca gac atg gag ctc tta	2256
His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu	
740 745 750	
gtg tgc act ttc tgc att aaa ttc agc cgc cac gtg aag aag ctt cag	2304
Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln	
755 760 765	
ctg att gag ggc agg cag cac aga tca aca tgg agc ccc acc atg gta	2352
Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val	
770 775 780	
gtc ctg ttc agg tgg gtc cca gtc aca gat gcc tat tgg cag att ctc	2400
Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu	
785 790 795 800	
ttc tcc gtc ctc aag gtc acc aga aac ctg aag gag ctg gac cta agt	2448
Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser	
805 810 815	
gga aac tcg ctg agc cac tct gca gtg aag agt ctt tgt aag acc ctg	2496
Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu	
820 825 830	
aga cgc cct cgc tgc ctc ctg gag acc ctg cgg ttg gct ggc tgt ggc	2544

Arg	Arg	Pro	Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	Gly	Cys	Gly		
		835					840					845					
ctc	aca	gct	gag	gac	tgc	aag	gac	ctt	gcc	ttt	ggg	ctg	aga	gcc	aac	2592	
Leu	Thr	Ala	Glu	Asp	Cys	Lys	Asp	Leu	Ala	Phe	Gly	Leu	Arg	Ala	Asn		
	850					855					860						
cag	acc	ctg	acc	gag	ctg	gac	ctg	agc	ttc	aat	gtg	ctc	acg	gat	gct	2640	
Gln	Thr	Leu	Thr	Glu	Leu	Asp	Leu	Ser	Phe	Asn	Val	Leu	Thr	Asp	Ala		
865					870					875					880		
gga	gcc	aaa	cac	ctt	tgc	cag	aga	ctg	aga	cag	ccg	agc	tgc	aag	cta	2688	
Gly	Ala	Lys	His	Leu	Cys	Gln	Arg	Leu	Arg	Gln	Pro	Ser	Cys	Lys	Leu		
			885						890					895			
cag	cga	ctg	cag	ctg	gtc	agc	tgt	ggc	ctc	acg	tct	gac	tgc	tgc	cag	2736	
Gln	Arg	Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln		
		900						905					910				
gac	ctg	gcc	tct	gtg	ctt	agt	gcc	agc	ccc	agc	ctg	aag	gag	cta	gac	2784	
Asp	Leu	Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp		
	915						920					925					
ctg	cag	cag	aac	aac	ctg	gat	gac	gtt	ggc	gtg	cga	ctg	ctc	tgt	gag	2832	
Leu	Gln	Gln	Asn	Asn	Leu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu		
	930					935					940						
ggg	ctc	agg	cat	cct	gcc	tgc	aaa	ctc	ata	cgc	ctg	ggg	aaa	cca	agt	2880	
Gly	Leu	Arg	His	Pro	Ala	Cys	Lys	Leu	Ile	Arg	Leu	Gly	Lys	Pro	Ser		
945					950					955					960		
gtg	atg	acc	cct	act	gag	ggc	ctg	gat	acg	gga	gag	atg	agt	aat	agc	2928	
Val	Met	Thr	Pro	Thr	Glu	Gly	Leu	Asp	Thr	Gly	Glu	Met	Ser	Asn	Ser		
			965						970					975			
aca	tcc	tca	ctc	aag	cgg	cag	aga	ctc	gga	tca	gag	agg	gcg	gct	tcc	2976	
Thr	Ser	Ser	Leu	Lys	Arg	Gln	Arg	Leu	Gly	Ser	Glu	Arg	Ala	Ala	Ser		
			980					985					990				
cat	gtt	gct	cag	gct	aat	ctc	aaa	ctc	ctg	gac	gtg	agc	aag	atc	ttc	3024	
His	Val	Ala	Gln	Ala	Asn	Leu	Lys	Leu	Leu	Asp	Val	Ser	Lys	Ile	Phe		
	995					1000					1005						
cca	att	gct	gag	att	gca	gag	gaa	agc	tcc	cca	gag	gta	gta	ccg	gtg	3072	
Pro	Ile	Ala	Glu	Ile	Ala	Glu	Glu	Ser	Ser	Pro	Glu	Val	Val	Pro	Val		
	1010					1015					1020						
gaa	ctc	ttg	tgc	gtg	cct	tct	cct	gcc	tct	caa	ggg	gac	ctg	cat	acg	3120	
Glu	Leu	Leu	Cys	Val	Pro	Ser	Pro	Ala	Ser	Gln	Gly	Asp	Leu	His	Thr		
1025					1030					1035					1040		
aag	cct	ttg	ggg	act	gac	gat	gac	ttt	ctg	ggg	cct	gaa	gga	aat	gtg	3168	
Lys	Pro	Leu	Gly	Thr	Asp	Asp	Asp	Phe	Leu	Gly	Pro	Glu	Gly	Asn	Val		
			1045					1050						1055			
gat	gtt	gag	ttg	att	gat	aag	agc	aca	aac	aga	tac	agc	gtt	tggt	ttc	3216	
Asp	Val	Glu	Leu	Ile	Asp	Lys	Ser	Thr	Asn	Arg	Tyr	Ser	Val	Trp	Phe		

1060	1065	1070	
ccc act gct ggc tgg tat ctg tgg tca gcc aca ggc ctc ggc ttc ctg			3264
Pro Thr Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu			
1075	1080	1085	
gta agg gat gag gtc aca gtg acg att gcg ttt ggt tcc tgg agt cag			3312
Val Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln			
1090	1095	1100	
cac ctg gcc ctg gac ctg cag cac cat gaa cag tgg ctg gtg ggc ggc			3360
His Leu Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly			
1105	1110	1115	1120
ccc ttg ttt gat gtc act gca gag cca gag gag gct gtc gcc gaa atc			3408
Pro Leu Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile			
1125	1130	1135	
cac ctc ccc cac ttc atc tcc ctc caa ggt gag gtg gac gtc tcc tgg			3456
His Leu Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp			
1140	1145	1150	
ttt ctc gtt gcc cat ttt aag aat gaa ggg atg gtc ctg gag cat cca			3504
Phe Leu Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro			
1155	1160	1165	
gcc cgg gtg gag cct ttc tat gct gtc ctg gaa agc ccc agc ttc tct			3552
Ala Arg Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser			
1170	1175	1180	
ctg atg ggc atc ctg ctg cgg atc gcc agt ggg act cgc ctc tcc atc			3600
Leu Met Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile			
1185	1190	1195	1200
ccc atc act tcc aac aca ttg atc tat tat cac ccc cac ccc gaa gat			3648
Pro Ile Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp			
1205	1210	1215	
att aag ttc cac ttg tac ctt gtc ccc agc gac gcc ttg cta aca aag			3696
Ile Lys Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys			
1220	1225	1230	
gcg ata gat gat gag gaa gat cgc ttc cat ggt gtg cgc ctg cag act			3744
Ala Ile Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr			
1235	1240	1245	
tcg ccc cca atg gaa ccc ctg aac ttt ggt tcc agt tat att gtg tct			3792
Ser Pro Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser			
1250	1255	1260	
aat tct gct aac ctg aaa gta atg ccc aag gag ttg aaa ttg tcc tac			3840
Asn Ser Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr			
1265	1270	1275	1280
agg agc cct gga gaa att cag cac ttc tca aaa ttc tat gct ggg cag			3888
Arg Ser Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln			
1285	1290	1295	

atg aag gaa ccc att caa ctt gag att act gaa aaa aga cat ggg act	3936
Met Lys Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr	
1300 1305 1310	
ttg gtg tgg gat act gag gtg aag cca gtg gat ctc cag ctt gta gct	3984
Leu Val Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala	
1315 1320 1325	
gca tca gcc cct cct cct ttc tca ggt gca gcc ttt gtg aag gag aac	4032
Ala Ser Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn	
1330 1335 1340	
cac cgg caa ctc caa gcc agg atg ggg gac ctg aaa ggg gtg ctc gat	4080
His Arg Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp	
1345 1350 1355 1360	
gat ctc cag gac aat gag gtt ctt act gag aat gag aag gag ctg gtg	4128
Asp Leu Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val	
1365 1370 1375	
gag cag gaa aag aca cgg cag agc aag aat gag gcc ttg ctg agc atg	4176
Glu Gln Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met	
1380 1385 1390	
gtg gag aag aaa ggg gac ctg gcc ctg gac gtg ctc ttc aga agc att	4224
Val Glu Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile	
1395 1400 1405	
agt gaa agg gac cct tac ctc gtg tcc tat ctt aga cag cag aat ttg	4272
Ser Glu Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu	
1410 1415 1420	
taaaatgagt cagttaggtg gtctggaaga gagaatccag cggtctcatt ggaaatggat	4332
aaacagaaat gtgatcattg atttcagtgt tcaagacaga agaagactgg gtaacatcta	4392
tcacacaggc ttccaggaca gacttgtaac ctggcatgta cctattgact gtatcctcat	4452
gcattttcct caag	4466

<210> 12

<211> 1424

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Construct

<400> 12

Met	Ala	Gly	Gly	Ala	Trp	Gly	Arg	Leu	Ala	Cys	Tyr	Leu	Glu	Phe	Leu
1				5				10						15	

Lys	Lys	Glu	Glu	Leu	Lys	Glu	Phe	Gln	Leu	Leu	Leu	Ala	Asn	Lys	Ala
		20					25						30		

His	Ser	Arg	Ser	Ser	Ser	Gly	Glu	Thr	Pro	Ala	Gln	Pro	Glu	Lys	Thr
	35						40					45			

Ser	Gly	Met	Glu	Val	Ala	Ser	Tyr	Leu	Val	Ala	Gln	Tyr	Gly	Glu	Gln	50	55	60
Arg	Ala	Trp	Asp	Leu	Ala	Leu	His	Thr	Trp	Glu	Gln	Met	Gly	Leu	Arg	65	70	75
Ser	Leu	Cys	Ala	Gln	Ala	Gln	Glu	Gly	Ala	Gly	His	Ser	Pro	Ser	Phe	85	90	95
Pro	Tyr	Ser	Pro	Ser	Glu	Pro	His	Leu	Gly	Ser	Pro	Ser	Gln	Pro	Thr	100	105	110
Ser	Thr	Ala	Val	Leu	Met	Pro	Trp	Ile	His	Glu	Leu	Pro	Ala	Gly	Cys	115	120	125
Thr	Gln	Gly	Ser	Glu	Arg	Arg	Val	Leu	Arg	Gln	Leu	Pro	Asp	Thr	Ser	130	135	140
Gly	Arg	Arg	Trp	Arg	Glu	Ile	Ser	Ala	Ser	Leu	Leu	Tyr	Gln	Ala	Leu	145	150	155
Pro	Ser	Ser	Pro	Asp	His	Glu	Ser	Pro	Ser	Gln	Glu	Ser	Pro	Asn	Ala	165	170	175
Pro	Thr	Ser	Thr	Ala	Val	Leu	Gly	Ser	Trp	Gly	Ser	Pro	Pro	Gln	Pro	180	185	190
Ser	Leu	Ala	Pro	Arg	Glu	Gln	Glu	Ala	Pro	Gly	Thr	Gln	Trp	Pro	Leu	195	200	205
Asp	Glu	Thr	Ser	Gly	Ile	Tyr	Tyr	Thr	Glu	Ile	Arg	Glu	Arg	Glu	Arg	210	215	220
Glu	Lys	Ser	Glu	Lys	Gly	Arg	Pro	Pro	Trp	Ala	Ala	Val	Val	Gly	Thr	225	230	235
Pro	Pro	Gln	Ala	His	Thr	Ser	Leu	Gln	Pro	His	His	His	Pro	Trp	Glu	245	250	255
Pro	Ser	Val	Arg	Glu	Ser	Leu	Cys	Ser	Thr	Trp	Pro	Trp	Lys	Asn	Glu	260	265	270
Asp	Phe	Asn	Gln	Lys	Phe	Thr	Gln	Leu	Leu	Leu	Gln	Arg	Pro	His		275	280	285
Pro	Arg	Ser	Gln	Asp	Pro	Leu	Val	Lys	Arg	Ser	Trp	Pro	Asp	Tyr	Val	290	295	300
Glu	Glu	Asn	Arg	Gly	His	Leu	Ile	Glu	Ile	Arg	Asp	Leu	Phe	Gly	Pro	305	310	315
Gly	Leu	Asp	Thr	Gln	Glu	Pro	Arg	Ile	Val	Ile	Leu	Gln	Gly	Ala	Ala	325	330	335
Gly	Ile	Gly	Lys	Ser	Thr	Leu	Ala	Arg	Gln	Val	Lys	Glu	Ala	Trp	Gly	340	345	350

Arg	Gly	Gln	Leu	Tyr	Gly	Asp	Arg	Phe	Gln	His	Val	Phe	Tyr	Phe	Ser	355	360	365	
Cys	Arg	Glu	Leu	Ala	Gln	Ser	Lys	Val	Val	Ser	Leu	Ala	Glu	Leu	Ile	370	375	380	
Gly	Lys	Asp	Gly	Thr	Ala	Thr	Pro	Ala	Pro	Ile	Arg	Gln	Ile	Leu	Ser	385	390	395	400
Arg	Pro	Glu	Arg	Leu	Leu	Phe	Ile	Leu	Asp	Gly	Val	Asp	Glu	Pro	Gly	405	410	415	
Trp	Val	Leu	Gln	Glu	Pro	Ser	Ser	Glu	Leu	Cys	Leu	His	Trp	Ser	Gln	420	425	430	
Pro	Gln	Pro	Ala	Asp	Ala	Leu	Leu	Gly	Ser	Leu	Leu	Gly	Lys	Thr	Ile	435	440	445	
Leu	Pro	Glu	Ala	Ser	Phe	Leu	Ile	Thr	Ala	Arg	Thr	Thr	Ala	Leu	Gln	450	455	460	
Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln	Ala	Arg	Trp	Val	Glu	Val	Leu	Gly	465	470	475	480
Phe	Ser	Glu	Ser	Ser	Arg	Lys	Glu	Tyr	Phe	Tyr	Arg	Tyr	Phe	Thr	Asp	485	490	495	
Glu	Arg	Gln	Ala	Ile	Arg	Ala	Phe	Arg	Leu	Val	Lys	Ser	Asn	Lys	Glu	500	505	510	
Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro	Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr	515	520	525	
Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser	530	535	540	
Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln	545	550	555	560
Ala	Gln	Pro	Leu	Gly	Pro	Gln	Leu	Arg	Asp	Leu	Cys	Ser	Leu	Ala	Ala	565	570	575	
Glu	Gly	Ile	Trp	Gln	Lys	Lys	Thr	Leu	Phe	Ser	Pro	Asp	Asp	Leu	Arg	580	585	590	
Lys	His	Gly	Leu	Asp	Gly	Ala	Ile	Ile	Ser	Thr	Phe	Leu	Lys	Met	Gly	595	600	605	
Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu	610	615	620	
Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu	625	630	635	640
Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr	645	650	655	

Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg		
		660						665					670				
Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn		
		675					680					685					
Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val		
	690					695					700						
Pro	Ser	Leu	Gln	Leu	Leu	Leu	Gln	Pro	His	Ser	Leu	Glu	Ser	Leu	His		
705					710					715					720		
Cys	Leu	Tyr	Glu	Thr	Arg	Asn	Lys	Thr	Phe	Leu	Thr	Gln	Val	Met	Ala		
				725					730					735			
His	Phe	Glu	Glu	Met	Gly	Met	Cys	Val	Glu	Thr	Asp	Met	Glu	Leu	Leu		
			740					745					750				
Val	Cys	Thr	Phe	Cys	Ile	Lys	Phe	Ser	Arg	His	Val	Lys	Lys	Leu	Gln		
		755					760					765					
Leu	Ile	Glu	Gly	Arg	Gln	His	Arg	Ser	Thr	Trp	Ser	Pro	Thr	Met	Val		
	770					775					780						
Val	Leu	Phe	Arg	Trp	Val	Pro	Val	Thr	Asp	Ala	Tyr	Trp	Gln	Ile	Leu		
785					790					795					800		
Phe	Ser	Val	Leu	Lys	Val	Thr	Arg	Asn	Leu	Lys	Glu	Leu	Asp	Leu	Ser		
			805						810					815			
Gly	Asn	Ser	Leu	Ser	His	Ser	Ala	Val	Lys	Ser	Leu	Cys	Lys	Thr	Leu		
		820						825					830				
Arg	Arg	Pro	Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	Gly	Cys	Gly		
		835					840					845					
Leu	Thr	Ala	Glu	Asp	Cys	Lys	Asp	Leu	Ala	Phe	Gly	Leu	Arg	Ala	Asn		
	850					855					860						
Gln	Thr	Leu	Thr	Glu	Leu	Asp	Leu	Ser	Phe	Asn	Val	Leu	Thr	Asp	Ala		
865					870					875					880		
Gly	Ala	Lys	His	Leu	Cys	Gln	Arg	Leu	Arg	Gln	Pro	Ser	Cys	Lys	Leu		
			885						890					895			
Gln	Arg	Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln		
		900						905					910				
Asp	Leu	Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp		
		915					920					925					
Leu	Gln	Gln	Asn	Asn	Leu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu		
	930					935					940						
Gly	Leu	Arg	His	Pro	Ala	Cys	Lys	Leu	Ile	Arg	Leu	Gly	Lys	Pro	Ser		
945					950					955					960		

Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser
965 970 975

Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser
980 985 990

His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
995 1000 1005

Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val
1010 1015 1020

Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr
1025 1030 1035 1040

Lys Pro Leu Gly Thr Asp Asp Asp Phe Leu Gly Pro Glu Gly Asn Val
1045 1050 1055

Asp Val Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe
1060 1065 1070

Pro Thr Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu
1075 1080 1085

Val Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln
1090 1095 1100

His Leu Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly
1105 1110 1115 1120

Pro Leu Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile
1125 1130 1135

His Leu Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp
1140 1145 1150

Phe Leu Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro
1155 1160 1165

Ala Arg Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser
1170 1175 1180

Leu Met Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile
1185 1190 1195 1200

Pro Ile Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp
1205 1210 1215

Ile Lys Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys
1220 1225 1230

Ala Ile Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr
1235 1240 1245

Ser Pro Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser
1250 1255 1260

Asn Ser Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr
1265 1270 1275 1280

Arg Ser Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln
1285 1290 1295

Met Lys Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr
1300 1305 1310

Leu Val Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala
1315 1320 1325

Ala Ser Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn
1330 1335 1340

His Arg Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp
1345 1350 1355 1360

Asp Leu Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val
1365 1370 1375

Glu Gln Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met
1380 1385 1390

Val Glu Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile
1395 1400 1405

Ser Glu Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu
1410 1415 1420

<210> 13

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 13

ccgaattcac catggctggc ggagcctggg gc

32

<210> 14

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 14

ccgctcgagt caacagaggg ttgtggtggt cttg

34

<210> 15

<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 15
cccgaattcg aacctcgcat agtcatactg c 31

<210> 16
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 16
gtcccacaac agaattcaat ctcaacggtc 30

<210> 17
<211> 21
<212> DNA
<213> Homo sapiens

<400> 17
tgtgatgaga gaagcgggtga c 21

<210> 18
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 18
ccgctcgagc aaagaagggt cagccaaagc 30

<210> 19
<211> 209
<212> PRT
<213> Homo sapiens

<400> 19
Ile Val Ile Leu Gln Gly Ala Ala Gly Ile Gly Lys Ser Ile Leu Ala
1 5 10 15

Arg Gln Val Lys Glu Ala Trp Gly Arg Gly Gln Leu Tyr Gly Asp Arg
20 25 30

Phe Gln His Val Phe Tyr Phe Ser Cys Arg Glu Leu Ala Gln Ser Lys

35					40					45					
Val	Val	Ser	Leu	Ala	Glu	Leu	Ile	Gly	Lys	Asp	Gly	Thr	Ala	Thr	Pro
50						55				60					
Ala	Pro	Ile	Arg	Gln	Ile	Leu	Ser	Arg	Pro	Glu	Arg	Leu	Leu	Phe	Ile
65				70				75						80	
Leu	Asp	Gly	Val	Asp	Glu	Pro	Gly	Trp	Val	Leu	Gln	Glu	Pro	Ser	Ser
				85				90						95	
Glu	Leu	Cys	Leu	His	Trp	Ser	Gln	Pro	Gln	Pro	Ala	Asp	Ala	Leu	Leu
		100						105				110			
Gly	Ser	Leu	Leu	Gly	Lys	Thr	Ile	Leu	Pro	Glu	Ala	Ser	Phe	Leu	Ile
		115				120						125			
Thr	Ala	Arg	Thr	Thr	Ala	Leu	Gln	Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln
130						135				140					
Ala	Arg	Trp	Val	Glu	Val	Leu	Gly	Phe	Ser	Glu	Ser	Ser	Arg	Lys	Glu
145				150				155						160	
Tyr	Phe	Tyr	Arg	Tyr	Phe	Thr	Asp	Glu	Arg	Gln	Ala	Ile	Arg	Ala	Phe
		165						170				175			
Arg	Leu	Val	Lys	Ser	Asn	Lys	Glu	Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro
		180						185				190			
Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr	Cys	Leu	Met	Gln	Gln	Met	Lys	Arg
195						200				205					

Lys

<210> 20
<211> 212
<212> PRT
<213> Homo sapiens

<400> 20															
Thr	Ile	Phe	Ile	Leu	Gly	Asp	Ala	Gly	Val	Gly	Lys	Ser	Met	Leu	Leu
1				5					10					15	
Gln	Arg	Leu	Gln	Ser	Leu	Trp	Ala	Thr	Gly	Arg	Leu	Asp	Ala	Gly	Val
		20				25						30			
Lys	Phe	Phe	Phe	His	Phe	Arg	Cys	Arg	Met	Phe	Ser	Cys	Phe	Lys	Glu
		35				40						45			
Ser	Asp	Arg	Leu	Cys	Leu	Gln	Asp	Leu	Leu	Phe	Lys	His	Tyr	Cys	Tyr
50						55				60					
Pro	Glu	Arg	Asp	Pro	Glu	Glu	Val	Phe	Ala	Phe	Leu	Leu	Arg	Phe	Pro
65				70				75						80	

His Val Ala Leu Phe Thr Phe Asp Gly Leu Asp Glu Leu His Ser Asp
85 90 95

Leu Asp Leu Ser Arg Val Pro Asp Ser Ser Cys Pro Trp Glu Pro Ala
100 105 110

His Pro Leu Val Leu Leu Ala Asn Leu Leu Ser Gly Lys Leu Leu Lys
115 120 125

Gly Ala Ser Lys Leu Leu Thr Ala Arg Thr Gly Ile Glu Val Pro Arg
130 135 140

Gln Phe Leu Arg Lys Lys Val Leu Leu Arg Gly Phe Ser Pro Ser His
145 150 155 160

Leu Arg Ala Tyr Ala Arg Arg Met Phe Pro Glu Arg Ala Leu Gln Asp
165 170 175

Arg Leu Leu Ser Gln Leu Glu Ala Asn Pro Asn Leu Cys Ser Leu Cys
180 185 190

Ser Val Pro Leu Phe Cys Trp Ile Ile Phe Arg Cys Phe Gln His Phe
195 200 205

Arg Ala Ala Phe
210

<210> 21
<211> 219
<212> PRT
<213> Homo sapiens

<400> 21
Trp Val Thr Ile His Gly Met Ala Gly Cys Gly Lys Ser Val Leu Ala
1 5 10 15

Ala Glu Ala Val Arg Asp His Ser Leu Leu Glu Gly Cys Phe Pro Gly
20 25 30

Gly Val His Trp Val Ser Val Gly Lys Gln Asp Lys Ser Gly Leu Leu
35 40 45

Met Lys Leu Gln Asn Leu Cys Thr Arg Leu Asp Gln Asp Glu Ser Phe
50 55 60

Ser Gln Arg Leu Pro Leu Asn Ile Glu Glu Ala Lys Asp Arg Leu Arg
65 70 75 80

Ile Leu Met Leu Arg Lys His Pro Arg Ser Leu Leu Ile Leu Asp Asp
85 90 95

Val Trp Asp Ser Trp Val Leu Lys Ala Phe Asp Ser Gln Cys Gln Ile
100 105 110

Leu Leu Thr Thr Arg Asp Lys Ser Val Thr Asp Ser Val Met Gly Pro
115 120 125

Lys Tyr Val Val Pro Val Glu Ser Ser Leu Gly Lys Glu Lys Gly Leu
 130 135 140

Glu Ile Leu Ser Leu Phe Val Asn Met Lys Lys Ala Asp Leu Pro Glu
 145 150 155 160

Gln Ala His Ser Ile Ile Lys Glu Cys Lys Gly Ser Pro Leu Val Val
 165 170 175

Ser Leu Ile Gly Ala Leu Leu Arg Asp Phe Pro Asn Arg Trp Glu Tyr
 180 185 190

Tyr Leu Lys Gln Leu Gln Asn Lys Gln Phe Lys Arg Ile Arg Lys Ser
 195 200 205

Ser Ser Tyr Asp Tyr Glu Ala Leu Asp Glu Ala
 210 215

<210> 22
 <211> 221
 <212> PRT
 <213> Caenorhabditis elegans

<400> 22
 Phe Leu Phe Leu His Gly Arg Ala Gly Ser Gly Lys Ser Val Ile Ala
 1 5 10 15

Ser Gln Ala Leu Ser Lys Ser Asp Gln Leu Ile Gly Ile Asn Tyr Asp
 20 25 30

Ser Ile Val Trp Leu Lys Asp Ser Gly Thr Ala Pro Lys Ser Thr Phe
 35 40 45

Asp Leu Phe Thr Asp Ile Leu Leu Met Leu Lys Ser Glu Asp Asp Leu
 50 55 60

Leu Asn Phe Pro Ser Val Glu His Val Thr Ser Val Val Leu Lys Arg
 65 70 75 80

Met Ile Cys Asn Ala Leu Ile Asp Arg Pro Asn Thr Leu Phe Val Phe
 85 90 95

Asp Gln Val Val Gln Glu Glu Thr Ile Arg Trp Ala Gln Glu Leu Arg
 100 105 110

Leu Arg Cys Leu Val Thr Thr Arg Asp Val Glu Ile Ser Asn Ala Ala
 115 120 125

Ser Gln Thr Cys Glu Phe Ile Glu Val Thr Ser Leu Glu Ile Asp Glu
 130 135 140

Cys Tyr Asp Phe Leu Glu Ala Tyr Gly Met Pro Met Pro Val Gly Glu
 145 150 155 160

Lys Glu Glu Asp Val Leu Asn Lys Thr Ile Glu Leu Ser Ser Gly Asn

	165		170		175										
Pro	Ala	Thr	Leu	Met	Met	Phe	Phe	Lys	Ser	Cys	Glu	Pro	Lys	Thr	Phe
			180					185					190		
Glu	Lys	Met	Ala	Gln	Leu	Asn	Asn	Lys	Leu	Glu	Ser	Arg	Gly	Leu	Asx
		195					200					205			
Gly	Asx	Glu	Cys	Ile	Thr	Pro	Tyr	Ser	Tyr	Lys	Ser	Leu			
	210					215					220				

<210> 23
 <211> 91
 <212> PRT
 <213> Homo sapiens

<400> 23

Leu	Asp	Ala	Pro	Gln	Leu	Leu	His	Phe	Val	Asp	Gln	Tyr	Arg	Glu	Gln
1				5					10					15	
Leu	Ile	Ala	Arg	Val	Thr	Ser	Val	Glu	Val	Val	Leu	Asp	Lys	Leu	His
			20					25					30		
Gly	Gln	Val	Leu	Ser	Gln	Glu	Gln	Tyr	Glu	Arg	Val	Leu	Ala	Glu	Asn
		35					40					45			
Thr	Arg	Pro	Ser	Gln	Met	Arg	Lys	Leu	Phe	Ser	Leu	Ser	Gln	Ser	Trp
	50					55					60				
Asp	Arg	Lys	Cys	Lys	Asp	Gly	Leu	Tyr	Gln	Ala	Leu	Lys	Glu	Thr	His
65					70					75					80
Leu	Ile	Met	Glu	Leu	Trp	Glu	Lys	Gly	Ser	Lys					
				85					90						

<210> 24
 <211> 91
 <212> PRT
 <213> Homo sapiens

<400> 24

Met	Asp	Ala	Lys	Ala	Arg	Asn	Cys	Leu	Leu	Gln	His	Arg	Glu	Ala	Leu
1				5					10					15	
Glu	Lys	Asp	Ile	Lys	Thr	Ser	Tyr	Ile	Met	Asp	His	Met	Ile	Ser	Asp
			20					25					30		
Gly	Phe	Leu	Thr	Ile	Ser	Glu	Glu	Glu	Lys	Val	Arg	Asn	Glu	Pro	Thr
		35					40					45			
Gln	Gln	Gln	Arg	Ala	Ala	Met	Leu	Ile	Lys	Met	Ile	Leu	Lys	Lys	Asp
		50				55					60				
Asn	Asp	Ser	Tyr	Val	Ser	Phe	Tyr	Asn	Ala	Leu	Leu	His	Glu	Gly	Tyr
65					70					75					80

Lys Asp Leu Ala Ala Leu Leu His Asp Gly Ile
85 90

<210> 25

<211> 90

<212> PRT

<213> *Caenorhabditis elegans*

<400> 25

Glu Ser His Pro His Ile Gln Leu Leu Lys Ser Asn Arg Glu Leu Leu
1 5 10 15

Val Thr His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn Leu Leu Lys
20 25 30

Asn Asp Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys Ala Cys Pro
35 40 45

Thr Gln Pro Asp Lys Tyr Arg Lys Ile Leu Asp Leu Val Gln Ser Lys
50 55 60

Gly Glu Glu Val Ser Glu Phe Phe Leu Tyr Leu Leu Gln Gln Leu Ala
65 70 75 80

Asp Ala Tyr Val Asp Leu Arg Pro Trp Leu
85 90

<210> 26

<211> 88

<212> PRT

<213> *Caenorhabditis elegans*

<400> 26

Leu Cys Glu Ile Glu Cys Arg Ala Leu Ser Thr His Thr Arg Leu Ile
1 5 10 15

His Asp Phe Glu Pro Arg Asp Ala Leu Thr Tyr Leu Glu Gly Lys Asn
20 25 30

Ile Phe Thr Glu His Ser Glu Leu Ile Ser Lys Met Ser Thr Arg Leu
35 40 45

Glu Arg Ile Ala Asn Phe Leu Arg Ile Tyr Arg Arg Gln Ala Ser Glu
50 55 60

Leu Gly Pro Leu Ile Asp Phe Phe Asn Tyr Asn Asn Gln Ser His Leu
65 70 75 80

Ala Asp Phe Leu Glu Gln Tyr Ile
85

<210> 27

<211> 91

<212> PRT

<213> *Caenorhabditis elegans*

<400> 27

```
Met Arg Gln Asp Arg Arg Ser Leu Leu Glu Arg Asn Ile Met Met Phe
 1              5              10              15

Ser Ser His Leu Lys Val Asp Glu Ile Leu Glu Val Leu Ile Ala Lys
          20              25              30

Gln Val Leu Asn Ser Asp Asn Gly Asp Met Ile Asn Ser Cys Gly Thr
      35              40              45

Val Arg Glu Lys Arg Arg Glu Ile Val Lys Ala Val Gln Arg Arg Gly
      50              55              60

Asp Val Ala Phe Asp Ala Phe Tyr Asp Ala Leu Arg Ser Thr Gly His
 65              70              75              80

Glu Gly Leu Ala Glu Val Leu Glu Pro Leu Ala
          85              90
```

<210> 28

<211> 95

<212> PRT

<213> *Homo sapiens*

<400> 28

```
Met Glu Ala Arg Asp Lys Gln Val Leu Arg Ser Leu Arg Leu Glu Leu
 1              5              10              15

Gly Ala Glu Val Leu Val Glu Gly Leu Val Leu Gln Tyr Leu Gln Tyr
          20              25              30

Gln Glu Gly Ile Leu Thr Glu Asn His Ile Gln Glu Ile Asn Ala Gln
      35              40              45

Thr Thr Gly Leu Arg Lys Thr Met Leu Leu Leu Asp Ile Leu Pro Ser
      50              55              60

Arg Gly Pro Lys Ala Phe Asp Ile Phe Leu Asp Ser Leu Gln Glu Phe
 65              70              75              80

Pro Trp Val Arg Glu Lys Leu Lys Lys Ala Arg Glu Glu Ala Met
          85              90              95
```

<210> 29

<211> 91

<212> PRT

<213> *Homo sapiens*

<400> 29

```
Met His Pro His His Gln Glu Thr Leu Lys Lys Asn Arg Val Val Leu
 1              5              10              15
```

Ala Lys Gln Leu Leu Leu Ser Glu Leu Leu Glu His Leu Leu Glu Lys
20 25 30

Gln Ile Ile Thr Leu Glu Met Arg Glu Leu Ile Gln Ala Lys Val Gly
35 40 45

Ser Phe Ser Gln Asn Val Glu Leu Leu Asn Leu Leu Pro Lys Arg Gly
50 55 60

Pro Gln Ala Phe Asp Ala Phe Cys Glu Ala Leu Arg Glu Thr Lys Gln
65 70 75 80

Gly His Leu Arg Asp Met Leu Leu Thr Thr Leu
85 90

<210> 30

<211> 93

<212> PRT

<213> Homo sapiens

<400> 30

Met Asp Glu Ala Asp Arg Arg Leu Leu Arg Arg Cys Arg Leu Arg Leu
1 5 10 15

Val Glu Glu Leu Gln Val Gln Gln Leu Trp Asp Val Leu Leu Ser Arg
20 25 30

Glu Leu Phe Arg Pro His Met Ile Glu Asp Ile Gln Arg Ala Gly Ser
35 40 45

Gly Ser Arg Arg Asp Gln Ala Arg Gln Leu Asp Ile Asp Leu Glu Thr
50 55 60

Arg Gly Ser Gln Ala Leu Pro Leu Phe Ile Ser Cys Leu Glu Asp Thr
65 70 75 80

Gly Gln Asp Met Leu Ala Ser Phe Leu Arg Thr Asn Arg
85 90